

SEQUENCE LISTING

<110> KYOWA HAKKO KOGYO CO., LTD.

<120> Shear Stress-Responsive Genes

<130> 1241.22

<140> US/10/089,320

<141> 2002-03-28

<150> JP 1999-280976

<151> 1999-10-01

<160> 181

<170> PatentIn Ver. 2.0

<210> 1

<211> 3817

<212> DNA

<213> Homo sapiens

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<221> CDS

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cggcctgccg gcggggacga cagcattgcg cctgggtgca gcagtgtgcg tctcggggaa 180
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PH-1064PCT-US seq.TXT

tgtgaaacag agaaagatag gcggccatgg tccaaccttg aaggcttatac aggagggcag 420

acttcaaaaag ctactaaaa atg aac ggc cct gaa gat ctt ccc aag tcc tat 472

Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr

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gac tat gac ctt atc atc att gga ggt ggc tca gga ggt ctg gca gct 520

Asp Tyr Asp Leu Ile Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala

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gct aag gag gca gcc caa tat ggc aag aag gtg atg gtc ctg gac ttt 568

Ala Lys Glu Ala Ala Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe

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gtc act ccc acc cct ctt gga act aga tgg ggt ctt gga gga aca tgt 616

Val Thr Pro Thr Pro Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys

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gtg aat gtg ggt tgc ata cct aaa aaa ctg atg cat caa gca gct ttg 664

Val Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu

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tta gga caa gcc ctg caa gac tct cga aat tat gga tgg aaa gtc gag 712

Leu Gly Gln Ala Leu Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu

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gag aca gtt aag cat gat tgg gac aga atg ata gaa gct gta cag aat 760

Glu Thr Val Lys His Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn

95

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105

cac att ggc tct ttg aat tgg ggc tac cga gta gct ctg cgg gag aaa 808

His Ile Gly Ser Leu Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys

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| aaa gtc gtc tat gag aat gct tat ggg caa ttt att ggt cct cac agg | | | 856 |
| Lys Val Val Tyr Glu Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg | | | |
| 125 | 130 | 135 | |
| att aag gca aca aat aat aaa ggc aaa gaa aaa att tat tca gca gag | | | 904 |
| Ile Lys Ala Thr Asn Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu | | | |
| 140 | 145 | 150 | 155 |
| agt ttt ctc att gcc act ggt gaa aga cca cgt tac ttg ggc atc cct | | | 952 |
| Ser Phe Leu Ile Ala Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro | | | |
| 160 | 165 | 170 | |
| ggg gac aaa gaa tac tgc atc agc agt gat gat ctt ttc tcc ttg cct | | | 1000 |
| Gly Asp Lys Glu Tyr Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro | | | |
| 175 | 180 | 185 | |
| tac tgc ccg ggt aag acc ctg gtt gtt gga gca tcc tat gtc gct ttg | | | 1048 |
| Tyr Cys Pro Gly Lys Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu | | | |
| 190 | 195 | 200 | |
| gag tgc gct gga ttt ctt gct ggt att ggt tta ggc gtc act gtt atg | | | 1096 |
| Glu Cys Ala Gly Phe Leu Ala Gly Ile Gly Leu Gly Val Thr Val Met | | | |
| 205 | 210 | 215 | |
| gtt agg tcc att ctt ctt aga gga ttt gac cag gac atg gcc aac aaa | | | 1144 |
| Val Arg Ser Ile Leu Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys | | | |
| 220 | 225 | 230 | 235 |
| att ggt gaa cac atg gaa gaa cat ggc atc aag ttt ata aga cag ttc | | | 1192 |
| Ile Gly Glu His Met Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe | | | |

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| gta cca att aaa gtt gaa caa att gaa gca ggg aca cca ggc cga ctc | | | 1240 |
| Val Pro Ile Lys Val Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu | | | |
| 255 | 260 | 265 | |
| aga gta gta gct cag tcc acc aat agt gag gaa atc att gaa gga gaa | | | 1288 |
| Arg Val Val Ala Gln Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu | | | |
| 270 | 275 | 280 | |
| tat aat acg gtg atg ctg gca ata gga aga gat gct tgc aca aga aaa | | | 1336 |
| Tyr Asn Thr Val Met Leu Ala Ile Gly Arg Asp Ala Cys Thr Arg Lys | | | |
| 285 | 290 | 295 | |
| att ggc tta gaa acc gta ggg gtg aag ata aat gaa aag act gga aaa | | | 1384 |
| Ile Gly Leu Glu Thr Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys | | | |
| 300 | 305 | 310 | 315 |
| ata cct gtc aca gat gaa gaa cag acc aat gtg cct tac atc tat gcc | | | 1432 |
| Ile Pro Val Thr Asp Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala | | | |
| 320 | 325 | 330 | |
| att ggc gat ata ttg gag gat aag gtg gag ctc acc cca gtt gca atc | | | 1480 |
| Ile Gly Asp Ile Leu Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile | | | |
| 335 | 340 | 345 | |
| cag gca gga aga ttg ctg gct cag agg ctc tat gca ggt tcc act gtc | | | 1528 |
| Gln Ala Gly Arg Leu Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val | | | |
| 350 | 355 | 360 | |
| aag tgt gac tat gaa aat gtt cca acc act gta ttt act cct ttg gaa | | | 1576 |
| Lys Cys Asp Tyr Glu Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu | | | |

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|---|-----|-----|------|
| 365 | 370 | 375 | |
| tat ggt gct tgt ggc ctt tct gag gag aaa gct gtg gag aag ttt ggg | | | 1624 |
| Tyr Gly Ala Cys Gly Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly | | | |
| 380 | 385 | 390 | 395 |
| gaa gaa aat att gag gtt tac cat agt tac ttt tgg cca ttg gaa tgg | | | 1672 |
| Glu Glu Asn Ile Glu Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp | | | |
| | 400 | 405 | 410 |
| acg att ccg tca aga gat aac aac aaa tgt tat gca aaa ata atc tgt | | | 1720 |
| Thr Ile Pro Ser Arg Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys | | | |
| | 415 | 420 | 425 |
| aat act aaa gac aat gaa cgt gtt gtg ggc ttt cac gta ctg ggt cca | | | 1768 |
| Asn Thr Lys Asp Asn Glu Arg Val Val Gly Phe His Val Leu Gly Pro | | | |
| | 430 | 435 | 440 |
| aat gct gga gaa gtt aca caa ggc ttt gca gct gcg ctc aaa tgt gga | | | 1816 |
| Asn Ala Gly Glu Val Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly | | | |
| | 445 | 450 | 455 |
| ctg acc aaa aag cag ctg gac agc aca att gga atc cac cct gtc tgt | | | 1864 |
| Leu Thr Lys Lys Gln Leu Asp Ser Thr Ile Gly Ile His Pro Val Cys | | | |
| | 460 | 465 | 470 |
| gca gag gta ttc aca aca ttg tct gtg acc aag cgc tct ggg gca agc | | | 1912 |
| Ala Glu Val Phe Thr Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser | | | |
| | 480 | 485 | 490 |
| atc ctc cag gct ggc tgc tgaggttaag cccagtggtg gatgctgttg | | | 1960 |
| Ile Leu Gln Ala Gly Cys | | | |

PH-1064PCT-US seq.TXT

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<212> PRT

<213> Homo sapiens

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| 1 | | | | | | 5 | | | | | | | | 10 | 15 |
| Ile | Ile | Gly | Gly | Gly | Ser | Gly | Gly | Leu | Ala | Ala | Ala | Lys | Glu | Ala | Ala |
| | | | | | | 20 | | | | | | | | 25 | 30 |
| Gln | Tyr | Gly | Lys | Lys | Val | Met | Val | Leu | Asp | Phe | Val | Thr | Pro | Thr | Pro |
| | | | | | | 35 | | | | | | | | 40 | 45 |
| Leu | Gly | Thr | Arg | Trp | Gly | Leu | Gly | Gly | Thr | Cys | Val | Asn | Val | Gly | Cys |
| | | | | | | 50 | | | | | | | | 55 | 60 |
| Ile | Pro | Lys | Lys | Leu | Met | His | Gln | Ala | Ala | Leu | Leu | Gly | Gln | Ala | Leu |
| 65 | | | | | | 70 | | | | | | | | 75 | 80 |

PH-1064PCT-US seq.TXT

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115 120 125
Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn
130 135 140
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Ser Phe Leu Ile Ala
145 150 155 160
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr
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Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys
180 185 190
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe
195 200 205
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210 215 220
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met
225 230 235 240
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val
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Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln
260 265 270

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Ser Thr Asn Ser Glu Glu Ile Ile Glu Gly Glu Tyr Asn Thr Val Met
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290 295 300
Val Gly Val Lys Ile Asn Glu Lys Thr Gly Lys Ile Pro Val Thr Asp
305 310 315 320
Glu Glu Gln Thr Asn Val Pro Tyr Ile Tyr Ala Ile Gly Asp Ile Leu
325 330 335
Glu Asp Lys Val Glu Leu Thr Pro Val Ala Ile Gln Ala Gly Arg Leu
340 345 350
Leu Ala Gln Arg Leu Tyr Ala Gly Ser Thr Val Lys Cys Asp Tyr Glu
355 360 365
Asn Val Pro Thr Thr Val Phe Thr Pro Leu Glu Tyr Gly Ala Cys Gly
370 375 380
Leu Ser Glu Glu Lys Ala Val Glu Lys Phe Gly Glu Glu Asn Ile Glu
385 390 395 400
Val Tyr His Ser Tyr Phe Trp Pro Leu Glu Trp Thr Ile Pro Ser Arg
405 410 415
Asp Asn Asn Lys Cys Tyr Ala Lys Ile Ile Cys Asn Thr Lys Asp Asn
420 425 430
Glu Arg Val Val Gly Phe His Val Leu Gly Pro Asn Ala Gly Glu Val
435 440 445
Thr Gln Gly Phe Ala Ala Ala Leu Lys Cys Gly Leu Thr Lys Lys Gln
450 455 460

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 Thr Leu Ser Val Thr Lys Arg Ser Gly Ala Ser Ile Leu Gln Ala Gly
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<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (6)..(938)

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 tgg ccg cga ccc ccc gcc ccg ggc ccg ccc ccg ccg ctc ccg ctg 98
 Trp Pro Arg Pro Pro Ala Pro Gly Pro Pro Pro Pro Pro Leu Pro Leu
 20 25 30
 ctg ctc ctg ctc ctg gcc ggg ctg ctg ggc ggc gcg ggc gcg cag tac 146
 Leu Leu Leu Leu Leu Ala Gly Leu Leu Gly Gly Ala Gly Ala Gln Tyr
 35 40 45
 tcc agc gac cgg tgc agc tgg aag ggg agc ggg ctg acg cac gag gca 194

PH-1064PCT-US seq.TXT

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Ser | Asp | Arg | Cys | Ser | Trp | Lys | Gly | Ser | Gly | Leu | Thr | His | Glu | Ala | | |
| | | 50 | | | | | 55 | | | | | 60 | | | | | |
| cac | agg | aag | gag | gtg | gag | cag | gtg | tat | ctg | cgc | tgt | gcg | gcg | ggg | gcc | 242 | |
| His | Arg | Lys | Glu | Val | Glu | Gln | Val | Tyr | Leu | Arg | Cys | Ala | Ala | Gly | Ala | | |
| | | 65 | | | | | 70 | | | | | 75 | | | | | |
| gtg | gag | tgg | atg | tac | cca | aca | ggg | gct | ctc | atc | ggt | aac | ctg | cgg | ccc | 290 | |
| Val | Glu | Trp | Met | Tyr | Pro | Thr | Gly | Ala | Leu | Ile | Val | Asn | Leu | Arg | Pro | | |
| | | 80 | | | | 85 | | | | | 90 | | | | 95 | | |
| aac | acc | ttc | tcg | cct | gcc | cgg | cac | ctg | acc | gtg | tgc | atc | agg | tcc | ttc | 338 | |
| Asn | Thr | Phe | Ser | Pro | Ala | Arg | His | Leu | Thr | Val | Cys | Ile | Arg | Ser | Phe | | |
| | | | | 100 | | | | | 105 | | | | | | 110 | | |
| acg | gac | tcc | tcg | ggg | gcc | aat | att | tat | ttg | gaa | aaa | act | gga | gaa | ctg | 386 | |
| Thr | Asp | Ser | Ser | Gly | Ala | Asn | Ile | Tyr | Leu | Glu | Lys | Thr | Gly | Glu | Leu | | |
| | | | | 115 | | | | | 120 | | | | | | 125 | | |
| aga | ctg | ctg | gta | ccg | gac | ggg | gac | ggc | agg | ccc | ggc | cgg | gtg | cag | tgt | 434 | |
| Arg | Leu | Leu | Val | Pro | Asp | Gly | Asp | Gly | Arg | Pro | Gly | Arg | Val | Gln | Cys | | |
| | | | | 130 | | | | | 135 | | | | | | 140 | | |
| ttt | ggc | ctg | gag | cag | ggc | ggc | ctg | ttc | gtg | gag | gcc | acg | ccg | cag | cag | 482 | |
| Phe | Gly | Leu | Glu | Gln | Gly | Gly | Leu | Phe | Val | Glu | Ala | Thr | Pro | Gln | Gln | | |
| | | | | 145 | | | | | 150 | | | | | | 155 | | |
| gat | atc | ggc | cgg | agg | acc | aca | ggc | ttc | cag | tac | gag | ctg | gtt | agg | agg | 530 | |
| Asp | Ile | Gly | Arg | Arg | Thr | Thr | Gly | Phe | Gln | Tyr | Glu | Leu | Val | Arg | Arg | | |
| | | | | 160 | | | | | 165 | | | | | | 175 | | |
| cac | agg | gcg | tcg | gac | ctg | cac | gag | ctg | tct | gcg | ccg | tgc | cgt | ccc | tgc | 578 | |

PH-1064PCT-US seq.TXT

| | | |
|--|---|-----|
| His Arg Ala Ser Asp Leu | His Glu Leu Ser Ala Pro Cys Arg Pro Cys | |
| 180 | 185 | 190 |
| agt gac acc gag gtg ctc cta gcc gtc tgc acc agc gac ttc gcc gtt | | 626 |
| Ser Asp Thr Glu Val Leu Leu Ala Val Cys Thr Ser Asp Phe Ala Val | | |
| 195 | 200 | 205 |
| cga ggc tcc atc cag caa gtt acc cac gag cct gag cgg cag gac tca | | 674 |
| Arg Gly Ser Ile Gln Gln Val Thr His Glu Pro Glu Arg Gln Asp Ser | | |
| 210 | 215 | 220 |
| gcc atc cac ctg cgc gtg agc aga ctc tat cgg cag aaa agc agg gtc | | 722 |
| Ala Ile His Leu Arg Val Ser Arg Leu Tyr Arg Gln Lys Ser Arg Val | | |
| 225 | 230 | 235 |
| ttc gag ccg gtg ccc gag ggt gac ggc cac tgg cag ggg cgc gtc agg | | 770 |
| Phe Glu Pro Val Pro Glu Gly Asp Gly His Trp Gln Gly Arg Val Arg | | |
| 240 | 245 | 250 |
| 255 | | |
| acg ctg ctg gag tgt ggc gtg cgg ccg ggg cat ggc gac ttc ctc ttc | | 818 |
| Thr Leu Leu Glu Cys Gly Val Arg Pro Gly His Gly Asp Phe Leu Phe | | |
| 260 | 265 | 270 |
| act ggc cac atg cac ttc ggg gag gcg cgg ctc ggc tgt gcc cca cgc | | 866 |
| Thr Gly His Met His Phe Gly Glu Ala Arg Leu Gly Cys Ala Pro Arg | | |
| 275 | 280 | 285 |
| ttc aag gac ttc cag agg atg tac agg gat gcc cag gag agg ggg ctg | | 914 |
| Phe Lys Asp Phe Gln Arg Met Tyr Arg Asp Ala Gln Glu Arg Gly Leu | | |
| 290 | 295 | 300 |
| aac cct tgt gag gtt ggc acg gac tgactccgtg ggccgctgcc cttcctctcc | | 968 |

PH-1064PCT-US seq.TXT

Asn Pro Cys Glu Val Gly Thr Asp

305

310

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<210> 4

<211> 311

<212> PRT

<213> Homo sapiens

<400> 4

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15

Pro Arg Pro Pro Ala Pro Gly Pro Pro Pro Pro Pro Leu Pro Leu Leu

20

25

30

Leu Leu Leu Leu Ala Gly Leu Leu Gly Gly Ala Gly Ala Gln Tyr Ser

35

40

45

Ser Asp Arg Cys Ser Trp Lys Gly Ser Gly Leu Thr His Glu Ala His

50

55

60

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Lys | Glu | Val | Glu | Gln | Val | Tyr | Leu | Arg | Cys | Ala | Ala | Gly | Ala | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Glu | Trp | Met | Tyr | Pro | Thr | Gly | Ala | Leu | Ile | Val | Asn | Leu | Arg | Pro | Asn |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Thr | Phe | Ser | Pro | Ala | Arg | His | Leu | Thr | Val | Cys | Ile | Arg | Ser | Phe | Thr |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Asp | Ser | Ser | Gly | Ala | Asn | Ile | Tyr | Leu | Glu | Lys | Thr | Gly | Glu | Leu | Arg |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Leu | Leu | Val | Pro | Asp | Gly | Asp | Gly | Arg | Pro | Gly | Arg | Val | Gln | Cys | Phe |
| | 130 | | | | | 135 | | | | | | 140 | | | |
| Gly | Leu | Glu | Gln | Gly | Gly | Leu | Phe | Val | Glu | Ala | Thr | Pro | Gln | Gln | Asp |
| 145 | | | | 150 | | | | | 155 | | | | | | 160 |
| Ile | Gly | Arg | Arg | Thr | Thr | Gly | Phe | Gln | Tyr | Glu | Leu | Val | Arg | Arg | His |
| | | | 165 | | | | | 170 | | | | | | 175 | |
| Arg | Ala | Ser | Asp | Leu | His | Glu | Leu | Ser | Ala | Pro | Cys | Arg | Pro | Cys | Ser |
| | | 180 | | | | | | 185 | | | | | | 190 | |
| Asp | Thr | Glu | Val | Leu | Leu | Ala | Val | Cys | Thr | Ser | Asp | Phe | Ala | Val | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Gly | Ser | Ile | Gln | Gln | Val | Thr | His | Glu | Pro | Glu | Arg | Gln | Asp | Ser | Ala |
| | | 210 | | | | 215 | | | | | | 220 | | | |
| Ile | His | Leu | Arg | Val | Ser | Arg | Leu | Tyr | Arg | Gln | Lys | Ser | Arg | Val | Phe |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Glu | Pro | Val | Pro | Glu | Gly | Asp | Gly | His | Trp | Gln | Gly | Arg | Val | Arg | Thr |
| | | | 245 | | | | | | 250 | | | | | 255 | |

PH-1064PCT-US seq.TXT

Leu Leu Glu Cys Gly Val Arg Pro Gly His Gly Asp Phe Leu Phe Thr

260

265

270

Gly His Met His Phe Gly Glu Ala Arg Leu Gly Cys Ala Pro Arg Phe

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Lys Asp Phe Gln Arg Met Tyr Arg Asp Ala Gln Glu Arg Gly Leu Asn

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295

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Pro Cys Glu Val Gly Thr Asp

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Met Ala Pro

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Gly Ala Ala Gln Glu Leu Gln Ala Lys Leu Ala Glu Ile Gly Ala Pro

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10

15

atc cag ggt aat cgc gag gag ctg gtg gag cgg ctg cag agc tac acc 153

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| | | | | | | | | | | | | | | | | | |
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| Ile | Gln | Gly | Asn | Arg | Glu | Glu | Leu | Val | Glu | Arg | Leu | Gln | Ser | Tyr | Thr | | |
| 20 | | | | | 25 | | | | 30 | | | | | | 35 | | |
| cgc | cag | act | ggc | atc | gtg | ctg | aat | cgg | ccg | ggt | ttg | aga | ggg | gaa | gat | 201 | |
| Arg | Gln | Thr | Gly | Ile | Val | Leu | Asn | Arg | Pro | Val | Leu | Arg | Gly | Glu | Asp | | |
| | | | 40 | | | | | 45 | | | | | 50 | | | | |
| ggg | gac | aaa | gcc | gct | cca | cct | ccc | atg | tcg | gca | cag | ctc | cct | gga | att | 249 | |
| Gly | Asp | Lys | Ala | Ala | Pro | Pro | Pro | Met | Ser | Ala | Gln | Leu | Pro | Gly | Ile | | |
| | | | 55 | | | | | 60 | | | | | 65 | | | | |
| ccc | atg | cca | cca | cca | cct | ttg | gga | ctc | ccc | cct | ctg | cag | cct | cct | ccg | 297 | |
| Pro | Met | Pro | Pro | Pro | Pro | Leu | Gly | Leu | Pro | Pro | Leu | Gln | Pro | Pro | Pro | | |
| | | | 70 | | | | | 75 | | | | | 80 | | | | |
| cca | ccc | cca | cca | cct | cca | cca | ggc | ctt | ggc | ctt | ggc | ttt | cct | atg | gcc | 345 | |
| Pro | Pro | Pro | Pro | Pro | Pro | Pro | Gly | Leu | Gly | Leu | Gly | Phe | Pro | Met | Ala | | |
| | | | 85 | | | | | 90 | | | | | 95 | | | | |
| cac | cca | cca | aat | ttg | ggg | ccc | ccg | cct | cct | ctc | cgt | gtg | ggt | gag | cca | 393 | |
| His | Pro | Pro | Asn | Leu | Gly | Pro | Pro | Pro | Pro | Leu | Arg | Val | Gly | Glu | Pro | | |
| 100 | | | | | 105 | | | | | 110 | | | | 115 | | | |
| gtg | gca | ctg | tca | gag | gag | gag | cgg | ctg | aag | ttg | gct | cag | cag | cag | gcg | 441 | |
| Val | Ala | Leu | Ser | Glu | Glu | Glu | Arg | Leu | Lys | Leu | Ala | Gln | Gln | Gln | Ala | | |
| | | | | | 120 | | | | | 125 | | | | 130 | | | |
| gca | ttg | ctg | atg | cag | cag | gag | gag | cgt | gcc | aag | cag | cag | gga | gat | cat | 489 | |
| Ala | Leu | Leu | Met | Gln | Gln | Glu | Glu | Arg | Ala | Lys | Gln | Gln | Gly | Asp | His | | |
| | | | 135 | | | | | 140 | | | | | 145 | | | | |
| tcg | ctg | aag | gaa | cat | gag | ctc | ttg | gag | cag | cag | aag | cgg | gca | gct | gtg | 537 | |

Ser Leu Lys Glu His Glu Leu Leu Glu Gln Gln Lys Arg Ala Ala Val

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|
| | | 150 | | | | | 155 | | | | | 160 | | | | | |
| tta | ctg | gag | cag | gaa | cga | cag | cag | gag | att | gcc | aag | atg | ggc | acc | cca | | 585 |
| Leu | Leu | Glu | Gln | Glu | Arg | Gln | Gln | Glu | Ile | Ala | Lys | Met | Gly | Thr | Pro | | |
| | | 165 | | | | | 170 | | | | | 175 | | | | | |
| gtc | cct | cgg | ccc | cca | caa | gac | atg | ggc | cag | att | ggg | gtg | cgc | act | cct | | 633 |
| Val | Pro | Arg | Pro | Pro | Gln | Asp | Met | Gly | Gln | Ile | Gly | Val | Arg | Thr | Pro | | |
| | | 180 | | | | 185 | | | | 190 | | | | | 195 | | |
| ctg | ggg | cct | cga | gta | gct | gct | cca | gtg | ggc | cca | gtg | ggc | ccc | act | cct | | 681 |
| Leu | Gly | Pro | Arg | Val | Ala | Ala | Pro | Val | Gly | Pro | Val | Gly | Pro | Thr | Pro | | |
| | | | | 200 | | | | | 205 | | | | | 210 | | | |
| aca | gtt | ttg | ccc | atg | gga | gcc | cct | gtt | ccc | cgg | cct | cgt | ggg | ccc | cca | | 729 |
| Thr | Val | Leu | Pro | Met | Gly | Ala | Pro | Val | Pro | Arg | Pro | Arg | Gly | Pro | Pro | | |
| | | | 215 | | | | | | 220 | | | | 225 | | | | |
| ccg | ccc | cct | gga | gat | gag | aac | aga | gag | atg | gat | gac | ccc | tct | gtg | ggc | | 777 |
| Pro | Pro | Pro | Gly | Asp | Glu | Asn | Arg | Glu | Met | Asp | Asp | Pro | Ser | Val | Gly | | |
| | | 230 | | | | | 235 | | | | | 240 | | | | | |
| ccc | aag | atc | ccc | cag | gct | ttg | gag | aag | atc | ctg | cag | ctg | aag | gag | agc | | 825 |
| Pro | Lys | Ile | Pro | Gln | Ala | Leu | Glu | Lys | Ile | Leu | Gln | Leu | Lys | Glu | Ser | | |
| | | 245 | | | | 250 | | | | | | 255 | | | | | |
| cgc | cag | gaa | gag | atg | aat | tct | cag | cag | gag | gaa | gag | gaa | atg | gaa | aca | | 873 |
| Arg | Gln | Glu | Glu | Met | Asn | Ser | Gln | Gln | Glu | Glu | Glu | Glu | Met | Glu | Thr | | |
| | | 260 | | | | 265 | | | | 270 | | | | | 275 | | |
| gat | gct | cgc | tcg | tcc | ctg | ggc | cag | tca | gcg | tca | gag | act | gag | gag | gac | | 921 |

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Asp Ala Arg Ser Ser Leu Gly Gln Ser Ala Ser Glu Thr Glu Glu Asp
280 285 290
aca gtg tcc gta tct aaa aag gag aaa aac cgg aag cgt agg aac cga 969
Thr Val Ser Val Ser Lys Lys Glu Lys Asn Arg Lys Arg Arg Asn Arg
295 300 305
aag aag aag aaa aag ccc cag cgg gtg cga ggg gtg tcc tct gag agc 1017
Lys Lys Lys Lys Lys Pro Gln Arg Val Arg Gly Val Ser Ser Glu Ser
310 315 320
tct ggg gac cgg gag aaa gac tca acc cgg tcc cgt ggc tct gat tcc 1065
Ser Gly Asp Arg Glu Lys Asp Ser Thr Arg Ser Arg Gly Ser Asp Ser
325 330 335
cca gca gct gat gtt gag att gag tat gtg act gaa gaa cct gaa att 1113
Pro Ala Ala Asp Val Glu Ile Glu Tyr Val Thr Glu Glu Pro Glu Ile
340 345 350 355
tac gag ccc aac ttt atc ttc ttt aag agg atc ttt gag gct ttt aag 1161
Tyr Glu Pro Asn Phe Ile Phe Phe Lys Arg Ile Phe Glu Ala Phe Lys
360 365 370
ctc act gat gat gtg aag aag gag aaa gag aaa gag cca gag aaa ctt 1209
Leu Thr Asp Asp Val Lys Lys Glu Lys Glu Lys Glu Pro Glu Lys Leu
375 380 385
gac aaa ctg gag aac tct gca gcc ccc aag aag aag gga ttt gaa gag 1257
Asp Lys Leu Glu Asn Ser Ala Ala Pro Lys Lys Lys Gly Phe Glu Glu
390 395 400
gag cac aag gac agt gat gat gac agc agt gat gac gag cag gaa aag 1305

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| Glu His Lys Asp Ser Asp Asp Asp Ser Ser Asp Asp Glu Gln Glu Lys | |
| 405 | 410 |
| aag cca gaa gcc ccc aag ctg tcc aag aag aag ttg cgc cga atg aac | 1353 |
| Lys Pro Glu Ala Pro Lys Leu Ser Lys Lys Lys Leu Arg Arg Met Asn | |
| 420 | 425 |
| cgc ttc act gtg gct gaa ctc aag cag ctg gtg gct cgg ccc gat gtc | 1401 |
| Arg Phe Thr Val Ala Glu Leu Lys Gln Leu Val Ala Arg Pro Asp Val | |
| 440 | 445 |
| gtg gag atg cac gat gtg aca gcg cag gac cct aag ctc ttg gtt cac | 1449 |
| Val Glu Met His Asp Val Thr Ala Gln Asp Pro Lys Leu Leu Val His | |
| 455 | 460 |
| ctc aag gcc act cgg aac tct gtg cct gtg cca cgc cac tgg tgt ttt | 1497 |
| Leu Lys Ala Thr Arg Asn Ser Val Pro Val Pro Arg His Trp Cys Phe | |
| 470 | 475 |
| aag cgc aaa tac ctg cag ggc aaa cgg ggc att gag aag ccc ccc ttc | 1545 |
| Lys Arg Lys Tyr Leu Gln Gly Lys Arg Gly Ile Glu Lys Pro Pro Phe | |
| 485 | 490 |
| gag ctg cca gac ttc atc aaa cgc aca ggc atc cag gag atg cga gag | 1593 |
| Glu Leu Pro Asp Phe Ile Lys Arg Thr Gly Ile Gln Glu Met Arg Glu | |
| 500 | 505 |
| gcc ctg cag gag aag gaa gaa cag aag acc atg aag tca aaa atg cga | 1641 |
| Ala Leu Gln Glu Lys Glu Glu Gln Lys Thr Met Lys Ser Lys Met Arg | |
| 520 | 525 |
| gag aaa gtt cgg cct aag atg ggc aaa att gac atc gac tac cag aaa | 1689 |

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| | |
|---|------|
| Glu Lys Val Arg Pro Lys Met Gly Lys Ile Asp Ile Asp Tyr Gln Lys | |
| 535 | 540 |
| 545 | |
| ctg cat gat gcc ttc ttc aag tgg cag acc aag cca aag ctg acc atc | 1737 |
| Leu His Asp Ala Phe Phe Lys Trp Gln Thr Lys Pro Lys Leu Thr Ile | |
| 550 | 555 |
| 560 | |
| cat ggg gac ctg tac tat gag ggg aag gag ttc gag aca cga ctg aag | 1785 |
| His Gly Asp Leu Tyr Tyr Glu Gly Lys Glu Phe Glu Thr Arg Leu Lys | |
| 565 | 570 |
| 575 | |
| gag aag aag cca gga gat ctg tct gat gag cta agg att tcc ttg ggg | 1833 |
| Glu Lys Lys Pro Gly Asp Leu Ser Asp Glu Leu Arg Ile Ser Leu Gly | |
| 580 | 585 |
| 590 | 595 |
| atg cca gta gga cca aat gcc cac aag gtc cct ccc cca tgg ctg att | 1881 |
| Met Pro Val Gly Pro Asn Ala His Lys Val Pro Pro Pro Trp Leu Ile | |
| 600 | 605 |
| 610 | |
| gcc atg cag cga tat gga cca ccc cca tcg tat ccc aac ctg aaa atc | 1929 |
| Ala Met Gln Arg Tyr Gly Pro Pro Pro Ser Tyr Pro Asn Leu Lys Ile | |
| 615 | 620 |
| 625 | |
| cct ggg ctg aac tcg ccc atc cct gag agc tgt tcc ttt ggg tac cat | 1977 |
| Pro Gly Leu Asn Ser Pro Ile Pro Glu Ser Cys Ser Phe Gly Tyr His | |
| 630 | 635 |
| 640 | |
| gct ggt ggc tgg ggc aaa cct cca gtg gat gag act ggg aaa ccg ctc | 2025 |
| Ala Gly Gly Trp Gly Lys Pro Pro Val Asp Glu Thr Gly Lys Pro Leu | |
| 645 | 650 |
| 655 | |
| tat ggg gac gtg ttt gga acc aat gct gct gaa ttt cag acc aag act | 2073 |

Tyr Gly Asp Val Phe Gly Thr Asn Ala Ala Glu Phe Gln Thr Lys Thr

gag gaa gaa gag att gat cgg acc cct tgg ggg gaa ctg gaa cca tct 2121

Glu Glu Glu Glu Ile Asp Arg Thr Pro Trp Gly Glu Leu Glu Pro Ser

gat gaa gaa tcc tca gaa gaa gag gaa gag gaa gaa agt gat gaa gac 2169

Asp Glu Glu Ser Ser Glu Glu Glu Glu Glu Glu Glu Ser Asp Glu Asp

aaa cca gat gag aca ggc ttt att acc cct gca gac agt ggc ctt atc 2217

Lys Pro Asp Glu Thr Gly Phe Ile Thr Pro Ala Asp Ser Gly Leu Ile

act cct gga ggc ttt tca tca gtg cct gct gga atg gag acc cct gaa 2265

Thr Pro Gly Gly Phe Ser Ser Val Pro Ala Gly Met Glu Thr Pro Glu

ctc att gag ctg agg aag aag aag att gag gag gcg atg qac qqa aqt 2313

Leu Ile Glu Leu Arg Lys Lys Lys Ile Glu Glu Ala Met Asp Gly Ser

740 745 750 755

gag aca cct cag ctc ttc act gtg ttg cca gag aaq aga aca gcc act 2361

Glu Thr Pro Gln Leu Phe Thr Val Leu Pro Glu Lys Arg Thr Ala Thr

gtt gga ggg gcc atg atg gga tca acc cac att tat gac atg tcc acg 2409

Val Gly Gly Ala Met Met Gly Ser Thr His Ile Tyr Asp Met Ser Thr

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Val Met Ser Arg Lys Gly Pro Ala Pro Glu Leu Gln Gly Val Glu Val
790 795 800
gcg ctg gcg cct gaa gag ttg gag ctg gat cct atg gcc atg acc cag 2505
Ala Leu Ala Pro Glu Glu Leu Glu Leu Asp Pro Met Ala Met Thr Gln
805 810 815
aag tat gag gag cat gtg cgg gag cag cag gct caa gta gag aag gag 2553
Lys Tyr Glu Glu His Val Arg Glu Gln Gln Ala Gln Val Glu Lys Glu
820 825 830 835
gac ttc agt gac atg gtg gct gag cac gct gcc aaa cag aag caa aaa 2601
Asp Phe Ser Asp Met Val Ala Glu His Ala Ala Lys Gln Lys Gln Lys
840 845 850
aaa cgg aaa gct cag ccc cag gac agc cgt ggg ggc agc aag aaa tat 2649
Lys Arg Lys Ala Gln Pro Gln Asp Ser Arg Gly Gly Ser Lys Lys Tyr
855 860 865
aag gag ttc aag ttt taggtcccct cacactagcc ctttttttgg ccctacgtct 2704
Lys Glu Phe Lys Phe
870
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| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| Gly | Ala | Pro | Ile | Gln | Gly | Asn | Arg | Glu | Glu | Leu | Val | Glu | Arg | Leu | Gln | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| Ser | Tyr | Thr | Arg | Gln | Thr | Gly | Ile | Val | Leu | Asn | Arg | Pro | Val | Leu | Arg | |
| | | 35 | | | | 40 | | | | | | 45 | | | | |
| Gly | Glu | Asp | Gly | Asp | Lys | Ala | Ala | Pro | Pro | Pro | Met | Ser | Ala | Gln | Leu | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Pro | Gly | Ile | Pro | Met | Pro | Pro | Pro | Pro | Leu | Gly | Leu | Pro | Pro | Leu | Gln | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Pro | Gly | Leu | Gly | Leu | Gly | Phe | |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| Pro | Met | Ala | His | Pro | Pro | Asn | Leu | Gly | Pro | Pro | Pro | Pro | Leu | Arg | Val | |
| | | 100 | | | | | | 105 | | | | | 110 | | | |
| Gly | Glu | Pro | Val | Ala | Leu | Ser | Glu | Glu | Glu | Arg | Leu | Lys | Leu | Ala | Gln | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Gln | Gln | Ala | Ala | Leu | Leu | Met | Gln | Gln | Glu | Glu | Arg | Ala | Lys | Gln | Gln | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Gly | Asp | His | Ser | Leu | Lys | Glu | His | Glu | Leu | Leu | Glu | Gln | Gln | Lys | Arg | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Ala | Ala | Val | Leu | Leu | Glu | Gln | Glu | Arg | Gln | Gln | Glu | Ile | Ala | Lys | Met | |
| | | | 165 | | | | | 170 | | | | | | 175 | | |
| Gly | Thr | Pro | Val | Pro | Arg | Pro | Pro | Gln | Asp | Met | Gly | Gln | Ile | Gly | Val | |
| | | 180 | | | | | | 185 | | | | | | 190 | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Thr | Pro | Leu | Gly | Pro | Arg | Val | Ala | Ala | Pro | Val | Gly | Pro | Val | Gly | | | | |
| | | | | | | | | | | | | | | | | 195 | 200 | 205 | |
| Pro | Thr | Pro | Thr | Val | Leu | Pro | Met | Gly | Ala | Pro | Val | Pro | Arg | Pro | Arg | | | | |
| | | | | | | | | | | | | | | | | 210 | 215 | 220 | |
| Gly | Pro | Pro | Pro | Pro | Pro | Gly | Asp | Glu | Asn | Arg | Glu | Met | Asp | Asp | Pro | | | | |
| | | | | | | | | | | | | | | | | 225 | 230 | 235 | 240 |
| Ser | Val | Gly | Pro | Lys | Ile | Pro | Gln | Ala | Leu | Glu | Lys | Ile | Leu | Gln | Leu | | | | |
| | | | | | | | | | | | | | | | | | 245 | 250 | 255 |
| Lys | Glu | Ser | Arg | Gln | Glu | Glu | Met | Asn | Ser | Gln | Gln | Glu | Glu | Glu | Glu | | | | |
| | | | | | | | | | | | | | | | | | 260 | 265 | 270 |
| Met | Glu | Thr | Asp | Ala | Arg | Ser | Ser | Leu | Gly | Gln | Ser | Ala | Ser | Glu | Thr | | | | |
| | | | | | | | | | | | | | | | | | 275 | 280 | 285 |
| Glu | Glu | Asp | Thr | Val | Ser | Val | Ser | Lys | Lys | Glu | Lys | Asn | Arg | Lys | Arg | | | | |
| | | | | | | | | | | | | | | | | | 290 | 295 | 300 |
| Arg | Asn | Arg | Lys | Lys | Lys | Lys | Lys | Pro | Gln | Arg | Val | Arg | Gly | Val | Ser | | | | |
| | | | | | | | | | | | | | | | | 305 | 310 | 315 | 320 |
| Ser | Glu | Ser | Ser | Gly | Asp | Arg | Glu | Lys | Asp | Ser | Thr | Arg | Ser | Arg | Gly | | | | |
| | | | | | | | | | | | | | | | | | 325 | 330 | 335 |
| Ser | Asp | Ser | Pro | Ala | Ala | Asp | Val | Glu | Ile | Glu | Tyr | Val | Thr | Glu | Glu | | | | |
| | | | | | | | | | | | | | | | | | 340 | 345 | 350 |
| Pro | Glu | Ile | Tyr | Glu | Pro | Asn | Phe | Ile | Phe | Phe | Lys | Arg | Ile | Phe | Glu | | | | |
| | | | | | | | | | | | | | | | | | 355 | 360 | 365 |
| Ala | Phe | Lys | Leu | Thr | Asp | Asp | Val | Lys | Lys | Glu | Lys | Glu | Lys | Glu | Pro | | | | |
| | | | | | | | | | | | | | | | | 370 | 375 | 380 | |

PH-1064PCT-US seq.TXT

Glu Lys Leu Asp Lys Leu Glu Asn Ser Ala Ala Pro Lys Lys Lys Gly
 385 390 395 400
 Phe Glu Glu Glu His Lys Asp Ser Asp Asp Asp Ser Ser Asp Asp Glu
 405 410 415
 Gln Glu Lys Lys Pro Glu Ala Pro Lys Leu Ser Lys Lys Lys Leu Arg
 420 425 430
 Arg Met Asn Arg Phe Thr Val Ala Glu Leu Lys Gln Leu Val Ala Arg
 435 440 445
 Pro Asp Val Val Glu Met His Asp Val Thr Ala Gln Asp Pro Lys Leu
 450 455 460
 Leu Val His Leu Lys Ala Thr Arg Asn Ser Val Pro Val Pro Arg His
 465 470 475 480
 Trp Cys Phe Lys Arg Lys Tyr Leu Gln Gly Lys Arg Gly Ile Glu Lys
 485 490 495
 Pro Pro Phe Glu Leu Pro Asp Phe Ile Lys Arg Thr Gly Ile Gln Glu
 500 505 510
 Met Arg Glu Ala Leu Gln Glu Lys Glu Glu Gln Lys Thr Met Lys Ser
 515 520 525
 Lys Met Arg Glu Lys Val Arg Pro Lys Met Gly Lys Ile Asp Ile Asp
 530 535 540
 Tyr Gln Lys Leu His Asp Ala Phe Phe Lys Trp Gln Thr Lys Pro Lys
 545 550 555 560
 Leu Thr Ile His Gly Asp Leu Tyr Tyr Glu Gly Lys Glu Phe Glu Thr
 565 570 575

PH-1064PCT-US seq.TXT

Arg Leu Lys Glu Lys Lys Pro Gly Asp Leu Ser Asp Glu Leu Arg Ile
580 585 590
Ser Leu Gly Met Pro Val Gly Pro Asn Ala His Lys Val Pro Pro Pro
595 600 605
Trp Leu Ile Ala Met Gln Arg Tyr Gly Pro Pro Pro Ser Tyr Pro Asn
610 615 620
Leu Lys Ile Pro Gly Leu Asn Ser Pro Ile Pro Glu Ser Cys Ser Phe
625 630 635 640
Gly Tyr His Ala Gly Gly Trp Gly Lys Pro Pro Val Asp Glu Thr Gly
645 650 655
Lys Pro Leu Tyr Gly Asp Val Phe Gly Thr Asn Ala Ala Glu Phe Gln
660 665 670
Thr Lys Thr Glu Glu Glu Glu Ile Asp Arg Thr Pro Trp Gly Glu Leu
675 680 685
Glu Pro Ser Asp Glu Glu Ser Ser Glu Glu Glu Glu Glu Glu Ser
690 695 700
Asp Glu Asp Lys Pro Asp Glu Thr Gly Phe Ile Thr Pro Ala Asp Ser
705 710 715 720
Gly Leu Ile Thr Pro Gly Gly Phe Ser Ser Val Pro Ala Gly Met Glu
725 730 735
Thr Pro Glu Leu Ile Glu Leu Arg Lys Lys Lys Ile Glu Glu Ala Met
740 745 750
Asp Gly Ser Glu Thr Pro Gln Leu Phe Thr Val Leu Pro Glu Lys Arg
755 760 765

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Thr Ala Thr Val Gly Gly Ala Met Met Gly Ser Thr His Ile Tyr Asp

770

775

780

Met Ser Thr Val Met Ser Arg Lys Gly Pro Ala Pro Glu Leu Gln Gly

785

790

795

800

Val Glu Val Ala Leu Ala Pro Glu Glu Leu Glu Leu Asp Pro Met Ala

805

810

815

Met Thr Gln Lys Tyr Glu Glu His Val Arg Glu Gln Gln Ala Gln Val

820

825

830

Glu Lys Glu Asp Phe Ser Asp Met Val Ala Glu His Ala Ala Lys Gln

835

840

845

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Lys Lys Tyr Lys Glu Phe Lys Phe

865

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cagctgggggt tccccgtcag cccgtgagcg gcc atg tcc aac ccc agc gcc cca 234

Met Ser Asn Pro Ser Ala Pro

1

5

cca cca tat gaa gac cgc aac ccc ctg tac cca ggc cct ccg ccc cct 282
Pro Pro Tyr Glu Asp Arg Asn Pro Leu Tyr Pro Gly Pro Pro Pro Pro

10

15

20

ggg ggc tat ggg cag cca tct gtc ctg cca gga ggg tat cct gcc tac 330
Gly Gly Tyr Gly Gln Pro Ser Val Leu Pro Gly Gly Tyr Pro Ala Tyr

25

30

35

cct ggc tac ccg cag cct ggc tac ggt cac cct gct ggc tac cca cag 378
Pro Gly Tyr Pro Gln Pro Gly Tyr Gly His Pro Ala Gly Tyr Pro Gln

40

45

50

55

ccc atg ccc ccc acc cac ccg atg ccc atg aac tac ggc cca ggc cat 426
Pro Met Pro Pro Thr His Pro Met Pro Met Asn Tyr Gly Pro Gly His

60

65

70

ggc tat gat ggg gag gag aga gcg gtg agt gat agc ttc ggg cct gga 474
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80

85

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Glu Trp Asp Asp Arg Lys Val Arg His Thr Phe Ile Arg Lys Val Tyr

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95

100

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Ser Ile Ile Ser Val Gln Leu Leu Ile Thr Val Ala Ile Ile Ala Ile
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Phe Thr Phe Val Glu Pro Val Ser Ala Phe Val Arg Arg Asn Val Ala
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gtc tac tac gtg tcc tat gct gtc ttc gtt gtc acc tac ctg atc ctt   666
Val Tyr Tyr Val Ser Tyr Ala Val Phe Val Val Thr Tyr Leu Ile Leu
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gcc tgc tgc cag gga ccc aga cgc cgt ttc cca tgg aac atc att ctg   714
Ala Cys Cys Gln Gly Pro Arg Arg Arg Phe Pro Trp Asn Ile Ile Leu
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ctg acc ctt ttt act ttt gcc atg ggc ttc atg acg ggc acc att tcc   762
Leu Thr Leu Phe Thr Phe Ala Met Gly Phe Met Thr Gly Thr Ile Ser
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ttc acc tcg tgc aca ggc ctc ttc tgt gtc ctg gga att gtg ctc ctg   906
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235

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Phe Leu Ala Tyr Asp Thr Gln Leu Val Leu Gly Asn Arg Lys His Thr

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280

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290

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300

305

310

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| Pro | Gly | Gly | Tyr | Pro | Ala | Tyr | Pro | Gly | Tyr | Pro | Gln | Pro | Gly | Tyr | Gly |
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| Ser Asp Ser Phe Gly Pro Gly Glu Trp Asp Asp Arg Lys Val Arg His | | | |
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| Thr Phe Ile Arg Lys Val Tyr Ser Ile Ile Ser Val Gln Leu Leu Ile | | | |
| | 100 | 105 | 110 |
| Thr Val Ala Ile Ile Ala Ile Phe Thr Phe Val Glu Pro Val Ser Ala | | | |
| | 115 | 120 | 125 |
| Phe Val Arg Arg Asn Val Ala Val Tyr Tyr Val Ser Tyr Ala Val Phe | | | |
| | 130 | 135 | 140 |
| Val Val Thr Tyr Leu Ile Leu Ala Cys Cys Gln Gly Pro Arg Arg Arg | | | |
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| Phe Pro Trp Asn Ile Ile Leu Leu Thr Leu Phe Thr Phe Ala Met Gly | | | |
| | 165 | 170 | 175 |
| Phe Met Thr Gly Thr Ile Ser Ser Met Tyr Gln Thr Lys Ala Val Ile | | | |
| | 180 | 185 | 190 |
| Ile Ala Met Ile Ile Thr Ala Val Val Ser Ile Ser Val Thr Ile Phe | | | |
| | 195 | 200 | 205 |
| Cys Phe Gln Thr Lys Val Asp Phe Thr Ser Cys Thr Gly Leu Phe Cys | | | |
| | 210 | 215 | 220 |
| Val Leu Gly Ile Val Leu Leu Val Thr Gly Ile Val Thr Ser Ile Val | | | |
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| Leu Tyr Phe Gln Tyr Val Tyr Trp Leu His Met Leu Tyr Ala Ala Leu | | | |

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| 260 | 265 | 270 |
| Leu Gly Asn Arg Lys His Thr Ile Ser Pro Glu Asp Tyr Ile Thr Gly | | |
| 275 | 280 | 285 |
| Ala Leu Gln Ile Tyr Thr Asp Ile Ile Tyr Ile Phe Thr Phe Val Leu | | |
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5

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| gtg agg cag gcg act aat cag att gtg atg aat tgt gct gat att gat | 256 | | | |
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| Ile Ile Thr Ala Ser Tyr Ala Pro Glu Gly Asp Glu Glu Ile His Ala | | | | |
| 60 | 65 | 70 | | |
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| Thr Gly Phe Asn Tyr Gln Asn Glu Asp Glu Lys Val Thr Leu Ser Phe | | | | |
| 75 | 80 | 85 | | |
| cct agt act ctg caa aca ggt acg gga acc tta aag ata gat ttt gtt | 400 | | | |
| Pro Ser Thr Leu Gln Thr Gly Thr Gly Thr Leu Lys Ile Asp Phe Val | | | | |
| 90 | 95 | 100 | 105 | |
| gga gag ctg aat gac aaa atg aaa ggt ttc tat aga agt aaa tat act | 448 | | | |
| Gly Glu Leu Asn Asp Lys Met Lys Gly Phe Tyr Arg Ser Lys Tyr Thr | | | | |
| 110 | 115 | 120 | | |
| acc cct tct gga gag gtg cgc tat gct gct gta aca cag ttt gag gct | 496 | | | |
| Thr Pro Ser Gly Glu Val Arg Tyr Ala Ala Val Thr Gln Phe Glu Ala | | | | |
| 125 | 130 | 135 | | |
| act gat gcc cga agg gct ttt cct tgc tgg gat gag cct gct atc aaa | 544 | | | |
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| Ala Thr Phe Asp Ile Ser Leu Val Val Pro Lys Asp Arg Val Ala Leu | | | |
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| tca aac atg aat gta att gac cgg aaa cca tac cct gat gat gaa aat | | | 640 |
| Ser Asn Met Asn Val Ile Asp Arg Lys Pro Tyr Pro Asp Asp Glu Asn | | | |
| 170 | 175 | 180 | 185 |
| tta gtg gaa gtg aag ttt gcc cgc aca cct gtt atg tct aca tat ctg | | | 688 |
| Leu Val Glu Val Lys Phe Ala Arg Thr Pro Val Met Ser Thr Tyr Leu | | | |
| 190 | 195 | 200 | |
| gtg gca ttt gtt gtg ggt gaa tat gac ttt gta gaa aca agg tca aaa | | | 736 |
| Val Ala Phe Val Val Gly Glu Tyr Asp Phe Val Glu Thr Arg Ser Lys | | | |
| 205 | 210 | 215 | |
| gat ggt gtg tgt gtc cgt gtt tac act cct gtt ggc aaa gca gag caa | | | 784 |
| Asp Gly Val Cys Val Arg Val Tyr Thr Pro Val Gly Lys Ala Glu Gln | | | |
| 220 | 225 | 230 | |
| gga aaa ttt gcg tta gag gtt gct gct aaa acc ttg cct ttt tat aag | | | 832 |
| Gly Lys Phe Ala Leu Glu Val Ala Ala Lys Thr Leu Pro Phe Tyr Lys | | | |
| 235 | 240 | 245 | |
| gac tac ttc aat gtt cct tat cct cta cct aaa att gat ctc att gct | | | 880 |
| Asp Tyr Phe Asn Val Pro Tyr Pro Leu Pro Lys Ile Asp Leu Ile Ala | | | |
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| att gca gac ttt gca gct ggt gcc atg gag aac tgg ggc ctt gtt act | | | 928 |
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| 270 | 275 | 280 | |
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| Tyr Arg Glu Thr Ala Leu Leu Ile Asp Pro Lys Asn Ser Cys Ser Ser | | | |
| 285 | 290 | 295 | |
| tcc cgc cag tgg gtt gct ctg gtt gtg gga cat gaa ctc gcc cat caa | | | 1024 |
| Ser Arg Gln Trp Val Ala Leu Val Val Gly His Glu Leu Ala His Gln | | | |
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| tgg ttt gga aat ctt gtt act atg gaa tgg tgg act cat ctt tgg tta | | | 1072 |
| Trp Phe Gly Asn Leu Val Thr Met Glu Trp Trp Thr His Leu Trp Leu | | | |
| 315 | 320 | 325 | |
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| Asn Glu Gly Phe Ala Ser Trp Ile Glu Tyr Leu Cys Val Asp His Cys | | | |
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| ttc cca gag tat gat att tgg act cag ttt gtt tct gct gat tac acc | | | 1168 |
| Phe Pro Glu Tyr Asp Ile Trp Thr Gln Phe Val Ser Ala Asp Tyr Thr | | | |
| 350 | 355 | 360 | |
| cgt gcc cag gag ctt gac gcc tta gat aac agc cat cct att gaa gtc | | | 1216 |
| Arg Ala Gln Glu Leu Asp Ala Leu Asp Asn Ser His Pro Ile Glu Val | | | |
| 365 | 370 | 375 | |
| agt gtg ggc cat cca tct gag gtt gat gag ata ttt gat gct ata tca | | | 1264 |
| Ser Val Gly His Pro Ser Glu Val Asp Glu Ile Phe Asp Ala Ile Ser | | | |
| 380 | 385 | 390 | |
| tat agc aaa ggt gca tct gtc atc cga atg ctg cat gac tac att ggg | | | 1312 |
| Tyr Ser Lys Gly Ala Ser Val Ile Arg Met Leu His Asp Tyr Ile Gly | | | |

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| gat aag gac ttt aag aaa gga atg aac atg tat tta acc aag ttc caa | 1360 | | | | | | | | | | | | | | | | | |
| Asp Lys Asp Phe Lys Lys Gly Met Asn Met Tyr Leu Thr Lys Phe Gln | | | | | | | | | | | | | | | | | | |
| 410 | | 415 | | | | | 420 | | | | | 425 | | | | | | |
| caa aag aat gct gcc aca gag gat ctc tgg gaa agt tta gaa aat gct | 1408 | | | | | | | | | | | | | | | | | |
| Gln Lys Asn Ala Ala Thr Glu Asp Leu Trp Glu Ser Leu Glu Asn Ala | | | | | | | | | | | | | | | | | | |
| | | 430 | | | | | 435 | | | | | 440 | | | | | | |
| agt ggt aaa cct ata gca gct gtg atg aat acc tgg acc aaa caa atg | 1456 | | | | | | | | | | | | | | | | | |
| Ser Gly Lys Pro Ile Ala Ala Val Met Asn Thr Trp Thr Lys Gln Met | | | | | | | | | | | | | | | | | | |
| | | 445 | | | | | 450 | | | | | 455 | | | | | | |
| gga ttt ccc ctc att tat gtg gaa gct gaa cag gta gaa gat gac aga | 1504 | | | | | | | | | | | | | | | | | |
| Gly Phe Pro Leu Ile Tyr Val Glu Ala Glu Gln Val Glu Asp Asp Arg | | | | | | | | | | | | | | | | | | |
| | | 460 | | | | | 465 | | | | | 470 | | | | | | |
| tta ttg agg ttg tcc caa aag aag ttc tgt gct ggt ggg tca tat gtt | 1552 | | | | | | | | | | | | | | | | | |
| Leu Leu Arg Leu Ser Gln Lys Lys Phe Cys Ala Gly Gly Ser Tyr Val | | | | | | | | | | | | | | | | | | |
| | | 475 | | | | | 480 | | | | | 485 | | | | | | |
| ggt gaa gat tgt ccc cag tgg atg gtc cct atc aca atc tct act agt | 1600 | | | | | | | | | | | | | | | | | |
| Gly Glu Asp Cys Pro Gln Trp Met Val Pro Ile Thr Ile Ser Thr Ser | | | | | | | | | | | | | | | | | | |
| 490 | | 495 | | | | | 500 | | | | | 505 | | | | | | |
| gaa gac ccc aac cag gcc aaa cta aaa att cta atg gac aag cca gag | 1648 | | | | | | | | | | | | | | | | | |
| Glu Asp Pro Asn Gln Ala Lys Leu Lys Ile Leu Met Asp Lys Pro Glu | | | | | | | | | | | | | | | | | | |
| | | 510 | | | | | 515 | | | | | 520 | | | | | | |
| atg aat gtg gtt ttg aaa aat gtc aaa cca gac caa tgg gtg aag tta | 1696 | | | | | | | | | | | | | | | | | |
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| 540 | 545 | 550 | |
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| Leu Glu Ser Leu Leu Pro Gly Ile Arg Asp Leu Ser Leu Pro Pro Val | | | |
| 555 | 560 | 565 | |
| gat cga ctt gga tta cag aat gac ctc ttc tcc ttg gct cga gct gga | | | 1840 |
| Asp Arg Leu Gly Leu Gln Asn Asp Leu Phe Ser Leu Ala Arg Ala Gly | | | |
| 570 | 575 | 580 | 585 |
| atc att agc act gta gag gtt cta aaa gtc atg gag gct ttt gtg aat | | | 1888 |
| Ile Ile Ser Thr Val Glu Val Leu Lys Val Met Glu Ala Phe Val Asn | | | |
| 590 | 595 | 600 | |
| gag ccc aat tat act gta tgg agc gac ctg agc tgt aac ctg ggg att | | | 1936 |
| Glu Pro Asn Tyr Thr Val Trp Ser Asp Leu Ser Cys Asn Leu Gly Ile | | | |
| 605 | 610 | 615 | |
| ctc tca act ctc ttg tcc cac aca gac ttc tat gag gaa atc cag gag | | | 1984 |
| Leu Ser Thr Leu Leu Ser His Thr Asp Phe Tyr Glu Glu Ile Gln Glu | | | |
| 620 | 625 | 630 | |
| ttt gtg aaa gat gtc ttt tca cct ata ggg gag aga ctg ggc tgg gac | | | 2032 |
| Phe Val Lys Asp Val Phe Ser Pro Ile Gly Glu Arg Leu Gly Trp Asp | | | |
| 635 | 640 | 645 | |
| ccc aaa cct gga gaa ggt cat ctc gat gca ctc ctg agg ggc ttg gtt | | | 2080 |
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| Leu Gly Lys Leu Gly Lys Ala Gly His Lys Ala Thr Leu Glu Glu Ala | | | | |
| 670 | 675 | 680 | | |
| cgt cgt cgg ttt aag gac cac gtg gaa gga aaa cag att ctc tcc gct | 2176 | | | |
| Arg Arg Arg Phe Lys Asp His Val Glu Gly Lys Gln Ile Leu Ser Ala | | | | |
| 685 | 690 | 695 | | |
| gat ctg agg agt cct gtc tat ctg act gtt ttg aag cat ggt gat ggc | 2224 | | | |
| Asp Leu Arg Ser Pro Val Tyr Leu Thr Val Leu Lys His Gly Asp Gly | | | | |
| 700 | 705 | 710 | | |
| act act tta gat att atg tta aaa ctt cat aaa caa gca gat atg caa | 2272 | | | |
| Thr Thr Leu Asp Ile Met Leu Lys Leu His Lys Gln Ala Asp Met Gln | | | | |
| 715 | 720 | 725 | | |
| gaa gag aaa aac cga atc gaa aga gtc ctt ggc gct act ctt ttg cct | 2320 | | | |
| Glu Glu Lys Asn Arg Ile Glu Arg Val Leu Gly Ala Thr Leu Leu Pro | | | | |
| 730 | 735 | 740 | 745 | |
| gac ctg att caa aaa gtc ctc acg ttt gca ctt tca gaa gag gta cgt | 2368 | | | |
| Asp Leu Ile Gln Lys Val Leu Thr Phe Ala Leu Ser Glu Glu Val Arg | | | | |
| 750 | 755 | 760 | | |
| cca cag gac act gta tcg gta att ggt gga gta gct gga ggc agc aag | 2416 | | | |
| Pro Gln Asp Thr Val Ser Val Ile Gly Gly Val Ala Gly Gly Ser Lys | | | | |
| 765 | 770 | 775 | | |
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| Ala Phe Phe Glu Ser His Pro Ala Pro Ser Ala Glu Arg Thr Ile Gln | | | |
| | 830 | 835 | 840 |
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| Gln Cys Cys Glu Asn Ile Leu Leu Asn Ala Ala Trp Leu Lys Arg Asp | | | |
| | 845 | 850 | 855 |
| gct gag agc atc cac cag tac ctc ctt cag cgg aag gcc tca cca ccc | | | 2704 |
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| | 860 | 865 | 870 |
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| 875 | | | |
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Pro Glu Gly Asp Glu Glu Ile His Ala Thr Gly Phe Asn Tyr Gln Asn
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Glu Asp Glu Lys Val Thr Leu Ser Phe Pro Ser Thr Leu Gln Thr Gly
85 90 95
Thr Gly Thr Leu Lys Ile Asp Phe Val Gly Glu Leu Asn Asp Lys Met
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Lys Gly Phe Tyr Arg Ser Lys Tyr Thr Thr Pro Ser Gly Glu Val Arg
115 120 125
Tyr Ala Ala Val Thr Gln Phe Glu Ala Thr Asp Ala Arg Arg Ala Phe
130 135 140
Pro Cys Trp Asp Glu Pro Ala Ile Lys Ala Thr Phe Asp Ile Ser Leu
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Val Val Pro Lys Asp Arg Val Ala Leu Ser Asn Met Asn Val Ile Asp
165 170 175
Arg Lys Pro Tyr Pro Asp Asp Glu Asn Leu Val Glu Val Lys Phe Ala
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| Ala | Met | Glu | Asn | Trp | Gly | Leu | Val | Thr | Tyr | Arg | Glu | Thr | Ala | Leu | Leu |
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| Ile | Asp | Pro | Lys | Asn | Ser | Cys | Ser | Ser | Ser | Arg | Gln | Trp | Val | Ala | Leu |
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| Val | Val | Gly | His | Glu | Leu | Ala | His | Gln | Trp | Phe | Gly | Asn | Leu | Val | Thr |
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| Met | Glu | Trp | Trp | Thr | His | Leu | Trp | Leu | Asn | Glu | Gly | Phe | Ala | Ser | Trp |
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| Ile | Glu | Tyr | Leu | Cys | Val | Asp | His | Cys | Phe | Pro | Glu | Tyr | Asp | Ile | Trp |
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| Thr | Gln | Phe | Val | Ser | Ala | Asp | Tyr | Thr | Arg | Ala | Gln | Glu | Leu | Asp | Ala |
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| Leu | Asp | Asn | Ser | His | Pro | Ile | Glu | Val | Ser | Val | Gly | His | Pro | Ser | Glu |
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Val Met Asn Thr Trp Thr Lys Gln Met Gly Phe Pro Leu Ile Tyr Val
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Glu Ala Glu Gln Val Glu Asp Asp Arg Leu Leu Arg Leu Ser Gln Lys
465 470 475 480
Lys Phe Cys Ala Gly Gly Ser Tyr Val Gly Glu Asp Cys Pro Gln Trp
485 490 495
Met Val Pro Ile Thr Ile Ser Thr Ser Glu Asp Pro Asn Gln Ala Lys
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Val Lys Pro Asp Gln Trp Val Lys Leu Asn Leu Gly Thr Val Gly Phe
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Tyr Arg Thr Gln Tyr Ser Ser Ala Met Leu Glu Ser Leu Leu Pro Gly
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 625 630 635 640
 Pro Ile Gly Glu Arg Leu Gly Trp Asp Pro Lys Pro Gly Glu Gly His
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 Gly His Lys Ala Thr Leu Glu Glu Ala Arg Arg Arg Phe Lys Asp His
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 Val Glu Gly Lys Gln Ile Leu Ser Ala Asp Leu Arg Ser Pro Val Tyr
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 Arg Val Leu Gly Ala Thr Leu Leu Pro Asp Leu Ile Gln Lys Val Leu
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 Ile Gly Gly Val Ala Gly Gly Ser Lys His Gly Arg Lys Ala Ala Trp
 770 775 780

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| Gly | Phe | Leu | Ile | Ser | Arg | Leu | Ile | Lys | Leu | Ser | Val | Glu | Gly | Phe | Ala |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Val | Asp | Lys | Met | Ala | Gly | Glu | Val | Lys | Ala | Phe | Phe | Glu | Ser | His | Pro |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Ala | Pro | Ser | Ala | Glu | Arg | Thr | Ile | Gln | Gln | Cys | Cys | Glu | Asn | Ile | Leu |
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Pro Thr Ile Phe Ser His Ser Ile Leu Leu Leu Leu Pro His His Val

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| ctg cag gag aag gag gac ctg cag gag ctc aat gat cgc ttg gcg gtc | 266 |
| Leu Gln Glu Lys Glu Asp Leu Gln Glu Leu Asn Asp Arg Leu Ala Val | |
| 30 35 40 | |
| tac atc gac cgt gtg cgc tcg ctg gaa acg gag aac gca ggg ctg cgc | 314 |
| Tyr Ile Asp Arg Val Arg Ser Leu Glu Thr Glu Asn Ala Gly Leu Arg | |
| 45 50 55 60 | |
| ctt cgc atc acc gag tct gaa gag gtg gtc agc cgc gag gtg tcc ggc | 362 |
| Leu Arg Ile Thr Glu Ser Glu Glu Val Val Ser Arg Glu Val Ser Gly | |
| 65 70 75 | |
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| Ile Lys Ala Ala Tyr Glu Ala Glu Leu Gly Asp Ala Arg Lys Thr Leu | |
| 80 85 90 | |
| gac tca gta gcc aag gag cgc gcc cgc ctg cag ctg gag ctg agc aaa | 458 |
| Asp Ser Val Ala Lys Glu Arg Ala Arg Leu Gln Leu Glu Leu Ser Lys | |
| 95 100 105 | |
| gtg cgt gag gag ttt aag gag ctg aaa gcg cgc aat acc aag aag gag | 506 |
| Val Arg Glu Glu Phe Lys Glu Leu Lys Ala Arg Asn Thr Lys Lys Glu | |
| 110 115 120 | |
| ggg gac ctg ata gct gct cag gct cgg ctg aag gac ctg gag gct ctg | 554 |
| Gly Asp Leu Ile Ala Ala Gln Ala Arg Leu Lys Asp Leu Glu Ala Leu | |
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| 145 150 155 | |
| acg ctg gag gcc gag ctg cat gat ctg cgg gcc cag gtg gcc aag ctt | 650 |
| Thr Leu Glu Gly Glu Leu His Asp Leu Arg Gly Gln Val Ala Lys Leu | |
| 160 165 170 | |
| gag gca gcc cta ggt gag gcc aag aag caa ctt cag gat gag atg ctg | 698 |
| Glu Ala Ala Leu Gly Glu Ala Lys Lys Gln Leu Gln Asp Glu Met Leu | |
| 175 180 185 | |
| cgg cgg gtg gat gct gag aac agg ctg cag acc atg aag gag gaa ctg | 746 |
| Arg Arg Val Asp Ala Glu Asn Arg Leu Gln Thr Met Lys Glu Glu Leu | |
| 190 195 200 | |
| gac ttc cag aag aac atc tac agt gag gag ctg cgt gag acc aag cgc | 794 |
| Asp Phe Gln Lys Asn Ile Tyr Ser Glu Glu Leu Arg Glu Thr Lys Arg | |
| 205 210 215 220 | |
| cgt cat gag acc cga ctg gtg gag att gac aat ggg aag cag cgt gag | 842 |
| Arg His Glu Thr Arg Leu Val Glu Ile Asp Asn Gly Lys Gln Arg Glu | |
| 225 230 235 | |
| ttt gag agc cgg ctg gcg gat gcg ctg cag gaa ctg cgg gcc cag cat | 890 |
| Phe Glu Ser Arg Leu Ala Asp Ala Leu Gln Glu Leu Arg Ala Gln His | |
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| gag gac cag gtg gag cag tat aag aag gag ctg gag aag act tat tct | 938 |
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| 270 275 280 | |
| gtg ggg gct gcc cac gag gag ctg cag cag tcg cgc atc cgc atc gac | 1034 |
| Val Gly Ala Ala His Glu Glu Leu Gln Gln Ser Arg Ile Arg Ile Asp | |
| 285 290 295 300 | |
| agc ctc tct gcc cag ctc agc cag ctc cag aag cag ctg gca gcc aag | 1082 |
| Ser Leu Ser Ala Gln Leu Ser Gln Leu Gln Lys Gln Leu Ala Ala Lys | |
| 305 310 315 | |
| gag gcg aag ctt cga gac ctg gag gac tca ctg gcc cgt gag cgg gac | 1130 |
| Glu Ala Lys Leu Arg Asp Leu Glu Asp Ser Leu Ala Arg Glu Arg Asp | |
| 320 325 330 | |
| acc agc cgg cgg ctg ctg gcg gaa aag gag cgg gag atg gcc gag atg | 1178 |
| Thr Ser Arg Arg Leu Leu Ala Glu Lys Glu Arg Glu Met Ala Glu Met | |
| 335 340 345 | |
| cgg gca agg atg cag cag cag ctg gac gag tac cag gag ctt ctg gac | 1226 |
| Arg Ala Arg Met Gln Gln Gln Leu Asp Glu Tyr Gln Glu Leu Leu Asp | |
| 350 355 360 | |
| atc aag ctg gcc ctg gac atg gag atc cac gcc tac cgc aag ctc ttg | 1274 |
| Ile Lys Leu Ala Leu Asp Met Glu Ile His Ala Tyr Arg Lys Leu Leu | |
| 365 370 375 380 | |
| gag ggc gag gag gag agg cta cgc ctg tcc ccc agc cct acc tcg cag | 1322 |
| Glu Gly Glu Glu Glu Arg Leu Arg Leu Ser Pro Ser Pro Thr Ser Gln | |
| 385 390 395 | |

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| 400 405 410 | |
| ggc agc gtc acc aaa aag cgc aaa ctg gag tcc act gag agc cgc agc | 1418 |
| Gly Ser Val Thr Lys Lys Arg Lys Leu Glu Ser Thr Glu Ser Arg Ser | |
| 415 420 425 | |
| agc ttc tca cag cac gca cgc act agc ggg cgc gtg gcc gtg gag gag | 1466 |
| Ser Phe Ser Gln His Ala Arg Thr Ser Gly Arg Val Ala Val Glu Glu | |
| 430 435 440 | |
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| Val Asp Glu Glu Gly Lys Phe Val Arg Leu Arg Asn Lys Ser Asn Glu | |
| 445 450 455 460 | |
| gac cag tcc atg ggc aat tgg cag atc aag cgc cag aat gga gat gat | 1562 |
| Asp Gln Ser Met Gly Asn Trp Gln Ile Lys Arg Gln Asn Gly Asp Asp | |
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| ccc ttg ctg act tac cgg ttc cca cca aag ttc acc ctg aag gct ggg | 1610 |
| Pro Leu Leu Thr Tyr Arg Phe Pro Pro Lys Phe Thr Leu Lys Ala Gly | |
| 480 485 490 | |
| cag gtg gtg acg atc tgg gct gca gga gct ggg gcc acc cac agc ccc | 1658 |
| Gln Val Val Thr Ile Trp Ala Ala Gly Ala Gly Ala Thr His Ser Pro | |
| 495 500 505 | |
| cct acc gac ctg gtg tgg aag gca cag aac acc tgg ggc tgc ggg aac | 1706 |
| Pro Thr Asp Leu Val Trp Lys Ala Gln Asn Thr Trp Gly Cys Gly Asn | |
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Val Arg Ser Leu Glu Thr Glu Asn Ala Gly Leu Arg Leu Arg Ile Thr
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| Tyr | Glu | Ala | Glu | Leu | Gly | Asp | Ala | Arg | Lys | Thr | Leu | Asp | Ser | Val | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Lys | Glu | Arg | Ala | Arg | Leu | Gln | Leu | Glu | Leu | Ser | Lys | Val | Arg | Glu | Glu |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Phe | Lys | Glu | Leu | Lys | Ala | Arg | Asn | Thr | Lys | Lys | Glu | Gly | Asp | Leu | Ile |
| | | | 115 | | | | 120 | | | | | | 125 | | |
| Ala | Ala | Gln | Ala | Arg | Leu | Lys | Asp | Leu | Glu | Ala | Leu | Leu | Asn | Ser | Lys |
| | | | 130 | | | | 135 | | | | | | 140 | | |
| Glu | Ala | Ala | Leu | Ser | Thr | Ala | Leu | Ser | Glu | Lys | Arg | Thr | Leu | Glu | Gly |
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| Glu | Leu | His | Asp | Leu | Arg | Gly | Gln | Val | Ala | Lys | Leu | Glu | Ala | Ala | Leu |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gly | Glu | Ala | Lys | Lys | Gln | Leu | Gln | Asp | Glu | Met | Leu | Arg | Arg | Val | Asp |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Ala | Glu | Asn | Arg | Leu | Gln | Thr | Met | Lys | Glu | Glu | Leu | Asp | Phe | Gln | Lys |
| | | | 195 | | | | | 200 | | | | | | 205 | |
| Asn | Ile | Tyr | Ser | Glu | Glu | Leu | Arg | Glu | Thr | Lys | Arg | Arg | His | Glu | Thr |
| | | | 210 | | | | 215 | | | | | | | 220 | |
| Arg | Leu | Val | Glu | Ile | Asp | Asn | Gly | Lys | Gln | Arg | Glu | Phe | Glu | Ser | Arg |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Ala | Asp | Ala | Leu | Gln | Glu | Leu | Arg | Ala | Gln | His | Glu | Asp | Gln | Val |
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PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gln | Tyr | Lys | Lys | Glu | Leu | Glu | Lys | Thr | Tyr | Ser | Ala | Lys | Leu | Asp |
| 260 | | | | 265 | | | | 270 | | | | | | | |
| Asn | Ala | Arg | Gln | Ser | Ala | Glu | Arg | Asn | Ser | Asn | Leu | Val | Gly | Ala | Ala |
| 275 | | | | 280 | | | | 285 | | | | | | | |
| His | Glu | Glu | Leu | Gln | Gln | Ser | Arg | Ile | Arg | Ile | Asp | Ser | Leu | Ser | Ala |
| 290 | | | | 295 | | | | 300 | | | | | | | |
| Gln | Leu | Ser | Gln | Leu | Gln | Lys | Gln | Leu | Ala | Ala | Lys | Glu | Ala | Lys | Leu |
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| Arg | Asp | Leu | Glu | Asp | Ser | Leu | Ala | Arg | Glu | Arg | Asp | Thr | Ser | Arg | Arg |
| 325 | | | | 330 | | | | 335 | | | | | | | |
| Leu | Leu | Ala | Glu | Lys | Glu | Arg | Glu | Met | Ala | Glu | Met | Arg | Ala | Arg | Met |
| 340 | | | | 345 | | | | 350 | | | | | | | |
| Gln | Gln | Gln | Leu | Asp | Glu | Tyr | Gln | Glu | Leu | Leu | Asp | Ile | Lys | Leu | Ala |
| 355 | | | | 360 | | | | 365 | | | | | | | |
| Leu | Asp | Met | Glu | Ile | His | Ala | Tyr | Arg | Lys | Leu | Leu | Glu | Gly | Glu | Glu |
| 370 | | | | 375 | | | | 380 | | | | | | | |
| Glu | Arg | Leu | Arg | Leu | Ser | Pro | Ser | Pro | Thr | Ser | Gln | Arg | Ser | Arg | Gly |
| 385 | | | | 390 | | | | 395 | | | | 400 | | | |
| Arg | Ala | Ser | Ser | His | Ser | Ser | Gln | Thr | Gln | Gly | Gly | Gly | Ser | Val | Thr |
| 405 | | | | 410 | | | | 415 | | | | | | | |
| Lys | Lys | Arg | Lys | Leu | Glu | Ser | Thr | Glu | Ser | Arg | Ser | Ser | Phe | Ser | Gln |
| 420 | | | | 425 | | | | 430 | | | | | | | |
| His | Ala | Arg | Thr | Ser | Gly | Arg | Val | Ala | Val | Glu | Glu | Val | Asp | Glu | Glu |
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 Gly Asn Trp Gln Ile Lys Arg Gln Asn Gly Asp Asp Pro Leu Leu Thr
 465 470 475 480
 Tyr Arg Phe Pro Pro Lys Phe Thr Leu Lys Ala Gly Gln Val Val Thr
 485 490 495
 Ile Trp Ala Ala Gly Ala Gly Ala Thr His Ser Pro Pro Thr Asp Leu
 500 505 510
 Val Trp Lys Ala Gln Asn Thr Trp Gly Cys Gly Asn Ser Leu Arg Thr
 515 520 525
 Ala Leu Ile Asn Ser Thr Gly Glu Glu Val Ala Met Arg Lys Leu Val
 530 535 540
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gagctcagac tcagaggaac atctgcggag agacccccga agccctctcc agggcagtcc 180
tcattccagac gctccggttag tgcagacagg agcgcgcagt ggccccgggt cgccgcgcc 239
atg gag cgg atc ccc agc gcg caa cca ccc ccc gcc tgc ctg ccc aaa 287
Met Glu Arg Ile Pro Ser Ala Gln Pro Pro Pro Ala Cys Leu Pro Lys
      1              5              10              15
gca ccg gga ctg gag cac cga gac cta cca ggg atg tac cct gcc cac 335
Ala Pro Gly Leu Glu His Arg Asp Leu Pro Gly Met Tyr Pro Ala His
      20              25              30
atg tac caa gtg tac aag tca aga cgg gga ata aag cgg agc gag gac 383
Met Tyr Gln Val Tyr Lys Ser Arg Arg Gly Ile Lys Arg Ser Glu Asp
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agc aag gag acc tac aaa ttg ccg cac cgg ctc ttc gag aaa aag aga 431
Ser Lys Glu Thr Tyr Lys Leu Pro His Arg Leu Phe Glu Lys Lys Arg
      50              55              60
cgt gac cgg att aac gag tgc atc gcc cag ctg aag gat ctc cta ccc 479
Arg Asp Arg Ile Asn Glu Cys Ile Ala Gln Leu Lys Asp Leu Leu Pro
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gaa cat ctc aaa ctt aca act ttg ggt cac ttg gaa aaa gca gtg gtt 527
Glu His Leu Lys Leu Thr Thr Leu Gly His Leu Glu Lys Ala Val Val
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Gln Gln Gln Gln Lys Ile Ile Ala Leu Gln Ser Gly Leu Gln Ala Gly
115 120 125
gag ctg tca ggg aga aat gtc gaa aca ggt caa gag atg ttc tgc tca 671
Glu Leu Ser Gly Arg Asn Val Glu Thr Gly Gln Glu Met Phe Cys Ser
130 135 140
ggt ttc cag aca tgt gcc cgg gag gtg ctt cag tat ctg gcc aag cac 719
Gly Phe Gln Thr Cys Ala Arg Glu Val Leu Gln Tyr Leu Ala Lys His
145 150 155 160
gag aac act cgg gac ctg aag tct tcg cag ctt gtc acc cac ctc cac 767
Glu Asn Thr Arg Asp Leu Lys Ser Ser Gln Leu Val Thr His Leu His
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cgg gtg gtc tcg gag ctg ctg cag ggt ggt acc tcc agg aag cca tca 815
Arg Val Val Ser Glu Leu Leu Gln Gly Gly Thr Ser Arg Lys Pro Ser
180 185 190
gac cca gct ccc aaa gtg atg gac ttc aag gaa aaa ccc agc tct ccg 863
Asp Pro Ala Pro Lys Val Met Asp Phe Lys Glu Lys Pro Ser Ser Pro
195 200 205
gcc aaa ggt tcg gaa ggt cct ggg aaa aac tgc gtg cca gtc atc cag 911
Ala Lys Gly Ser Glu Gly Pro Gly Lys Asn Cys Val Pro Val Ile Gln
210 215 220
cgg act ttc gct cac tcg agt ggg gag cag agc ggc agc gac acg gac 959

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| Arg | Thr | Phe | Ala | His | Ser | Ser | Gly | Glu | Gln | Ser | Gly | Ser | Asp | Thr | Asp | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| aca | gac | agt | ggc | tat | gga | gga | gat | tcg | gag | aag | ggc | gac | ttg | cgc | agt | 1007 | |
| Thr | Asp | Ser | Gly | Tyr | Gly | Gly | Asp | Ser | Glu | Lys | Gly | Asp | Leu | Arg | Ser | | |
| | | | 245 | | | | | | 250 | | | | | 255 | | | |
| gag | cag | ccg | tgc | ttc | aaa | agt | gac | cac | gga | cgc | agg | ttc | acg | atg | gga | 1055 | |
| Glu | Gln | Pro | Cys | Phe | Lys | Ser | Asp | His | Gly | Arg | Arg | Phe | Thr | Met | Gly | | |
| | | | 260 | | | | | | 265 | | | | | 270 | | | |
| gaa | agg | atc | ggc | gca | att | aag | caa | gag | tcc | gaa | gaa | ccc | ccc | aca | aaa | 1103 | |
| Glu | Arg | Ile | Gly | Ala | Ile | Lys | Gln | Glu | Ser | Glu | Glu | Pro | Pro | Thr | Lys | | |
| | | 275 | | | | | | | 280 | | | | | 285 | | | |
| aag | aac | cgg | atg | cag | ctt | tcg | gat | gat | gaa | ggc | cat | ttc | act | agc | agt | 1151 | |
| Lys | Asn | Arg | Met | Gln | Leu | Ser | Asp | Asp | Glu | Gly | His | Phe | Thr | Ser | Ser | | |
| | | 290 | | | | | | | 295 | | | | | 300 | | | |
| gac | ctg | atc | agc | tcc | ccg | ttc | ctg | ggc | cca | cac | cca | cac | cag | cct | cct | 1199 | |
| Asp | Leu | Ile | Ser | Ser | Pro | Phe | Leu | Gly | Pro | His | Pro | His | Gln | Pro | Pro | | |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | | | |
| ttc | tgc | ctg | ccc | ttc | tac | ctg | atc | cca | cct | tca | gcg | act | gcc | tac | ctg | 1247 | |
| Phe | Cys | Leu | Pro | Phe | Tyr | Leu | Ile | Pro | Pro | Ser | Ala | Thr | Ala | Tyr | Leu | | |
| | | | 325 | | | | | | | 330 | | | | 335 | | | |
| ccc | atg | ctg | gag | aag | tgc | tgg | tat | ccc | acc | tca | gtg | cca | gtg | cta | tac | 1295 | |
| Pro | Met | Leu | Glu | Lys | Cys | Trp | Tyr | Pro | Thr | Ser | Val | Pro | Val | Leu | Tyr | | |
| | | | 340 | | | | | | | 345 | | | | 350 | | | |
| cca | ggc | ctc | aac | gcc | tct | gcc | gca | gcc | ctc | tct | agc | ttc | atg | aac | cca | 1343 | |

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Pro Gly Leu Asn Ala Ser Ala Ala Ala Leu Ser Ser Phe Met Asn Pro

355

360

365

gac aag atc tcg gct ccc ttg ctc atg ccc cag aga ctc cct tct ccc 1391

Asp Lys Ile Ser Ala Pro Leu Leu Met Pro Gln Arg Leu Pro Ser Pro

370

375

380

ttg cca gct cat ccg tcc gtc gac tct tct gtc ttg ctc caa gct ctg 1439

Leu Pro Ala His Pro Ser Val Asp Ser Ser Val Leu Leu Gln Ala Leu

385

390

395

400

aag cca atc ccc cct tta aac tta gaa acc aaa gac taaactctct 1485

Lys Pro Ile Pro Pro Leu Asn Leu Glu Thr Lys Asp

405

410

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<400> 16

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Met Tyr Gln Val Tyr Lys Ser Arg Arg Gly Ile Lys Arg Ser Glu Asp

35 40 45

Ser Lys Glu Thr Tyr Lys Leu Pro His Arg Leu Phe Glu Lys Lys Arg

50 55 60

Arg Asp Arg Ile Asn Glu Cys Ile Ala Gln Leu Lys Asp Leu Leu Pro

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| | | | | Leu | Gly | His |
| | | | | Leu | Glu | Lys |
| | | | | Ala | Val | Val |
| | | 85 | | 90 | | 95 |
| Leu | Glu | Leu | Thr | Leu | Lys | His |
| | | | | Val | Lys | Ala |
| | | | | Leu | Thr | Asn |
| | | | | Leu | Ile | Asp |
| | | 100 | | 105 | | 110 |
| Gln | Gln | Gln | Gln | Lys | Ile | Ile |
| | | | | Ala | Leu | Gln |
| | | | | Ser | Gly | Leu |
| | | | | Gln | Ala | Gly |
| | | 115 | | 120 | | 125 |
| Glu | Leu | Ser | Gly | Arg | Asn | Val |
| | | | | Glu | Thr | Gly |
| | | | | Gln | Glu | Met |
| | | | | Phe | Cys | Ser |
| | | 130 | | 135 | | 140 |
| Gly | Phe | Gln | Thr | Cys | Ala | Arg |
| | | | | Glu | Val | Leu |
| | | | | Gln | Tyr | Leu |
| | | | | Ala | Lys | His |
| | | 145 | | 150 | | 155 |
| | | | | 155 | | 160 |
| Glu | Asn | Thr | Arg | Asp | Leu | Lys |
| | | | | Ser | Ser | Gln |
| | | | | Leu | Val | Thr |
| | | | | His | Leu | His |
| | | 165 | | 170 | | 175 |
| Arg | Val | Val | Ser | Glu | Leu | Leu |
| | | | | Gln | Gly | Gly |
| | | | | Thr | Ser | Arg |
| | | | | Lys | Pro | Ser |
| | | 180 | | 185 | | 190 |
| Asp | Pro | Ala | Pro | Lys | Val | Met |
| | | | | Asp | Phe | Lys |
| | | | | Glu | Lys | Pro |
| | | | | Ser | Ser | Pro |
| | | 195 | | 200 | | 205 |
| Ala | Lys | Gly | Ser | Glu | Gly | Pro |
| | | | | Gly | Lys | Asn |
| | | | | Cys | Val | Pro |
| | | | | Val | Ile | Gln |
| | | 210 | | 215 | | 220 |
| Arg | Thr | Phe | Ala | His | Ser | Ser |
| | | | | Gly | Glu | Gln |
| | | | | Ser | Gly | Ser |
| | | | | Asp | Thr | Asp |
| | | 225 | | 230 | | 235 |
| | | | | 235 | | 240 |
| Thr | Asp | Ser | Gly | Tyr | Gly | Gly |
| | | | | Asp | Ser | Glu |
| | | | | Lys | Gly | Asp |
| | | | | Leu | Arg | Ser |
| | | 245 | | 250 | | 255 |
| Glu | Gln | Pro | Cys | Phe | Lys | Ser |
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| 290 | 295 | 300 |
| Asp Leu Ile Ser Ser Pro Phe Leu Gly Pro His Pro His Gln Pro Pro | | |
| 305 | 310 | 315 |
| Phe Cys Leu Pro Phe Tyr Leu Ile Pro Pro Ser Ala Thr Ala Tyr Leu | | |
| 325 | 330 | 335 |
| Pro Met Leu Glu Lys Cys Trp Tyr Pro Thr Ser Val Pro Val Leu Tyr | | |
| 340 | 345 | 350 |
| Pro Gly Leu Asn Ala Ser Ala Ala Ala Leu Ser Ser Phe Met Asn Pro | | |
| 355 | 360 | 365 |
| Asp Lys Ile Ser Ala Pro Leu Leu Met Pro Gln Arg Leu Pro Ser Pro | | |
| 370 | 375 | 380 |
| Leu Pro Ala His Pro Ser Val Asp Ser Ser Val Leu Leu Gln Ala Leu | | |
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tcttaactag tgtaggaaaa cggctcaacc caccgctgcc gaa atg aag tat aag 175

Met Lys Tyr Lys

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25

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aca ggg gga ctg gaa gga tgg tgg ctg tgc tcg tta cac ggt cgg caa 319

Thr Gly Gly Leu Glu Gly Trp Trp Leu Cys Ser Leu His Gly Arg Gln

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45

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ggc att gtc cca ggc aac cgg gtg aag ctt ctg att ggt ccc atg cag 367

Gly Ile Val Pro Gly Asn Arg Val Lys Leu Leu Ile Gly Pro Met Gln

55

60

65

gag act gcc tcc agt cac gag cag cct gcc tct gga ctg atg cag cag 415

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75

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ccc cga gac acc atc tac caa gtg cca cct tcc tac caa aat cag gga 511
Pro Arg Asp Thr Ile Tyr Gln Val Pro Pro Ser Tyr Gln Asn Gln Gly
105          110          115
att tac caa gtc ccc act ggc cac ggc acc caa gaa caa gag gta tat 559
Ile Tyr Gln Val Pro Thr Gly His Gly Thr Gln Glu Gln Glu Val Tyr
120          125          130
cag gtg cca cca tca gtg cag aga agc att ggg gga acc agt ggg ccc 607
Gln Val Pro Pro Ser Val Gln Arg Ser Ile Gly Gly Thr Ser Gly Pro
135          140          145
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His Val Gly Lys Lys Val Ile Thr Pro Val Arg Thr Gly His Gly Tyr
150          155          160
gta tac gag tac cca tcc aga tac caa aag gat gtc tat gat atc cct 703
Val Tyr Glu Tyr Pro Ser Arg Tyr Gln Lys Asp Val Tyr Asp Ile Pro
165          170          175          180
cct tct cat acc act caa ggg gta tac gac atc cct ccc tca tca gca 751
Pro Ser His Thr Thr Gln Gly Val Tyr Asp Ile Pro Pro Ser Ser Ala
185          190          195
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200          205          210

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| 215 220 225 | |
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| Ala Cys Arg Asp Glu Ala Gly Leu Arg Glu Lys Asp Tyr Asp Phe Pro | |
| 230 235 240 | |
| cct ccc atg aga caa gct gga agg ccg gac ctc aga ccg gag ggg gtt | 943 |
| Pro Pro Met Arg Gln Ala Gly Arg Pro Asp Leu Arg Pro Glu Gly Val | |
| 245 250 255 260 | |
| tat gac att cct cca acc tgc acc aag cca gca ggg aag gac ctt cat | 991 |
| Tyr Asp Ile Pro Pro Thr Cys Thr Lys Pro Ala Gly Lys Asp Leu His | |
| 265 270 275 | |
| gta aaa tac aac tgt gac att cca gga gct gca gaa ccg gtg gct cga | 1039 |
| Val Lys Tyr Asn Cys Asp Ile Pro Gly Ala Ala Glu Pro Val Ala Arg | |
| 280 285 290 | |
| agg cac cag agc ctg tcc ccg aat cac cca ccc ccg caa ctc gga cag | 1087 |
| Arg His Gln Ser Leu Ser Pro Asn His Pro Pro Pro Gln Leu Gly Gln | |
| 295 300 305 | |
| tca gtg ggc tct cag aac gac gca tat gat gtc ccc cga ggc gtt cag | 1135 |
| Ser Val Gly Ser Gln Asn Asp Ala Tyr Asp Val Pro Arg Gly Val Gln | |
| 310 315 320 | |
| ttt ctt gag cca cca gca gaa acc agt gag aaa gca aac ccc cag gaa | 1183 |
| Phe Leu Glu Pro Pro Ala Glu Thr Ser Glu Lys Ala Asn Pro Gln Glu | |
| 325 330 335 340 | |

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| 345 350 355 | |
| ggc tct cgg gac ttg gtg gat ggg atc aac cga ttg tct ttc tcc agt | 1279 |
| Gly Ser Arg Asp Leu Val Asp Gly Ile Asn Arg Leu Ser Phe Ser Ser | |
| 360 365 370 | |
| aca ggc agc acc ccg agt aac atg tcc acg tct tcc acc tcc tcc aag | 1327 |
| Thr Gly Ser Thr Arg Ser Asn Met Ser Thr Ser Ser Thr Ser Ser Lys | |
| 375 380 385 | |
| gag tcc tca ctg tca gcc tcc cca gct cag gac aaa agg ctc ttc ctg | 1375 |
| Glu Ser Ser Leu Ser Ala Ser Pro Ala Gln Asp Lys Arg Leu Phe Leu | |
| 390 395 400 | |
| gat cca gac aca gct att gag aga ctt cag ccg ctc cag cag gcc ctt | 1423 |
| Asp Pro Asp Thr Ala Ile Glu Arg Leu Gln Arg Leu Gln Gln Ala Leu | |
| 405 410 415 420 | |
| gag atg ggt gtc tcc agc cta atg gca ctg gtc act acc gac tgg ccg | 1471 |
| Glu Met Gly Val Ser Ser Leu Met Ala Leu Val Thr Thr Asp Trp Arg | |
| 425 430 435 | |
| tgt tac gga tat atg gaa aga cac atc aat gaa ata cgc aca gca gtg | 1519 |
| Cys Tyr Gly Tyr Met Glu Arg His Ile Asn Glu Ile Arg Thr Ala Val | |
| 440 445 450 | |
| gac aag gtg gag ctg ttc ctg aag gag tac ctc cac ttt gtc aag gga | 1567 |
| Asp Lys Val Glu Leu Phe Leu Lys Glu Tyr Leu His Phe Val Lys Gly | |
| 455 460 465 | |

PH-1064PCT-US seq.TXT

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Ala Val Ala Asn Ala Ala Cys Leu Pro Glu Leu Ile Leu His Asn Lys
470 475 480
atg aag cgg gag ctg caa cga gtc gaa gac tcc cac cag atc ctg agt 1663
Met Lys Arg Glu Leu Gln Arg Val Glu Asp Ser His Gln Ile Leu Ser
485 490 495 500
caa acc agc cat gac tta aat gag tgc agc tgg tcc ctg aat atc ttg 1711
Gln Thr Ser His Asp Leu Asn Glu Cys Ser Trp Ser Leu Asn Ile Leu
505 510 515
gcc atc aac aag ccc cag aac aag tgt gac gat ctg gac cgg ttt gtg 1759
Ala Ile Asn Lys Pro Gln Asn Lys Cys Asp Asp Leu Asp Arg Phe Val
520 525 530
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Ile Asn Thr Asn Ala Glu Ala Leu Phe Arg Pro Gly Pro Gly Ser Leu
550 555 560
cat ctg aag aat ggg ccg gag agc atc atg aac tca acg gag tac cca 1903
His Leu Lys Asn Gly Pro Glu Ser Ile Met Asn Ser Thr Glu Tyr Pro
565 570 575 580
cac ggt ggc tcc cag gga cag ctg ctg cat cct ggt gac cac aag gcc 1951
His Gly Gly Ser Gln Gly Gln Leu Leu His Pro Gly Asp His Lys Ala
585 590 595

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| cag gcc cac aac aag gca ctg ccc cca ggc ctg agc aag gag cag gcc | 1999 |
| Gln Ala His Asn Lys Ala Leu Pro Pro Gly Leu Ser Lys Glu Gln Ala | |
| 600 605 610 | |
| cct gac tgt agc agc agt gat ggt tct gag agg agc tgg atg gat gac | 2047 |
| Pro Asp Cys Ser Ser Ser Asp Gly Ser Glu Arg Ser Trp Met Asp Asp | |
| 615 620 625 | |
| tac gat tac gtc cac cta cag ggt aag gag gag ttt gag agg caa cag | 2095 |
| Tyr Asp Tyr Val His Leu Gln Gly Lys Glu Glu Phe Glu Arg Gln Gln | |
| 630 635 640 | |
| aaa gag cta ttg gaa aaa gag aat atc atg aaa cag aac aag atg cag | 2143 |
| Lys Glu Leu Leu Glu Lys Glu Asn Ile Met Lys Gln Asn Lys Met Gln | |
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| ctg gaa cat cat cag ctg agc cag ttc cag ctg ttg gaa caa gag att | 2191 |
| Leu Glu His His Gln Leu Ser Gln Phe Gln Leu Leu Glu Gln Glu Ile | |
| 665 670 675 | |
| aca aag ccc gtg gag aat gac atc tcg aag tgg aag ccc tct cag agc | 2239 |
| Thr Lys Pro Val Glu Asn Asp Ile Ser Lys Trp Lys Pro Ser Gln Ser | |
| 680 685 690 | |
| cta ccc acc aca aac agt ggc gtg agt gct cag gat cgg cag ttg ctg | 2287 |
| Leu Pro Thr Thr Asn Ser Gly Val Ser Ala Gln Asp Arg Gln Leu Leu | |
| 695 700 705 | |
| tgc ttc tac tat gac caa tgt gag acc cat ttc att tcc ctt ctc aac | 2335 |
| Cys Phe Tyr Tyr Asp Gln Cys Glu Thr His Phe Ile Ser Leu Leu Asn | |
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gcc att gac gca ctc ttc agt tgt gtc agc tca gcc cag ccc ccg cga 2383
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atc ttc gtg gca cac agc aag ttt gtc atc ctc agt gca cac aaa ctg 2431
Ile Phe Val Ala His Ser Lys Phe Val Ile Leu Ser Ala His Lys Leu
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gtg ttc att gga gac acg ctg aca cgg cag gtg act gcc cag gac att 2479
Val Phe Ile Gly Asp Thr Leu Thr Arg Gln Val Thr Ala Gln Asp Ile
760 765 770
cgc aac aaa gtc atg aac tcc agc aac cag ctc tgc gag cag ctc aag 2527
Arg Asn Lys Val Met Asn Ser Ser Asn Gln Leu Cys Glu Gln Leu Lys
775 780 785
act ata gtc atg gca acc aag atg gcc gcc ctc cat tac ccc agc acc 2575
Thr Ile Val Met Ala Thr Lys Met Ala Ala Leu His Tyr Pro Ser Thr
790 795 800
acg gcc ctg cag gaa atg gtg cac caa gtg aca gac ctt tct aga aat 2623
Thr Ala Leu Gln Glu Met Val His Gln Val Thr Asp Leu Ser Arg Asn
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gcc cag ctg ttc aag cgc tct ttg ctg gag atg gca acg ttc 2665
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| Ile | Glu | Gln | Asn | Thr | Gly | Gly | Leu | Glu | Gly | Trp | Trp | Leu | Cys | Ser | Leu |
| | | | 35 | | | | 40 | | | | | | 45 | | |
| His | Gly | Arg | Gln | Gly | Ile | Val | Pro | Gly | Asn | Arg | Val | Lys | Leu | Leu | Ile |
| | | | 50 | | | | 55 | | | | | 60 | | | |
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| | | | 65 | | | | 70 | | | | 75 | | | 80 | |
| Leu | Met | Gln | Gln | Thr | Phe | Gly | Gln | Gln | Lys | Leu | Tyr | Gln | Val | Pro | Asn |
| | | | | | | 85 | | | 90 | | | | | 95 | |
| Pro | Gln | Ala | Ala | Pro | Arg | Asp | Thr | Ile | Tyr | Gln | Val | Pro | Pro | Ser | Tyr |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Gln | Asn | Gln | Gly | Ile | Tyr | Gln | Val | Pro | Thr | Gly | His | Gly | Thr | Gln | Glu |
| | | | 115 | | | | | 120 | | | | | | 125 | |
| Gln | Glu | Val | Tyr | Gln | Val | Pro | Pro | Ser | Val | Gln | Arg | Ser | Ile | Gly | Gly |
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| Thr | Ser | Gly | Pro | His | Val | Gly | Lys | Lys | Val | Ile | Thr | Pro | Val | Arg | Thr |
| | | | 145 | | | | 150 | | | | 155 | | | 160 | |
| Gly | His | Gly | Tyr | Val | Tyr | Glu | Tyr | Pro | Ser | Arg | Tyr | Gln | Lys | Asp | Val |
| | | | | | | 165 | | | | 170 | | | | 175 | |
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| | | | 180 | | | | | | 185 | | | | | 190 | |
| Pro | Ser | Ser | Ala | Lys | Gly | Pro | Val | Phe | Ser | Val | Pro | Val | Gly | Glu | Ile |
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 245 250 255
 Pro Glu Gly Val Tyr Asp Ile Pro Pro Thr Cys Thr Lys Pro Ala Gly
 260 265 270
 Lys Asp Leu His Val Lys Tyr Asn Cys Asp Ile Pro Gly Ala Ala Glu
 275 280 285
 Pro Val Ala Arg Arg His Gln Ser Leu Ser Pro Asn His Pro Pro Pro
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 Gln Leu Gly Gln Ser Val Gly Ser Gln Asn Asp Ala Tyr Asp Val Pro
 305 310 315 320
 Arg Gly Val Gln Phe Leu Glu Pro Pro Ala Glu Thr Ser Glu Lys Ala
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 Asn Pro Gln Glu Arg Asp Gly Val Tyr Asp Val Pro Leu His Asn Pro
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 Pro Asp Ala Lys Gly Ser Arg Asp Leu Val Asp Gly Ile Asn Arg Leu
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 Thr Ser Ser Lys Glu Ser Ser Leu Ser Ala Ser Pro Ala Gln Asp Lys
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Gln Gln Ala Leu Glu Met Gly Val Ser Ser Leu Met Ala Leu Val Thr
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Thr Asp Trp Arg Cys Tyr Gly Tyr Met Glu Arg His Ile Asn Glu Ile
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Arg Thr Ala Val Asp Lys Val Glu Leu Phe Leu Lys Glu Tyr Leu His
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Phe Val Lys Gly Ala Val Ala Asn Ala Ala Cys Leu Pro Glu Leu Ile
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485 490 495

Gln Ile Leu Ser Gln Thr Ser His Asp Leu Asn Glu Cys Ser Trp Ser
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Leu Asn Ile Leu Ala Ile Asn Lys Pro Gln Asn Lys Cys Asp Asp Leu
515 520 525

Asp Arg Phe Val Met Val Ala Lys Thr Val Pro Asp Asp Ala Lys Gln
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Leu Thr Thr Thr Ile Asn Thr Asn Ala Glu Ala Leu Phe Arg Pro Gly
545 550 555 560

Pro Gly Ser Leu His Leu Lys Asn Gly Pro Glu Ser Ile Met Asn Ser
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Thr Glu Tyr Pro His Gly Gly Ser Gln Gly Gln Leu Leu His Pro Gly
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 625 630 635 640
 Glu Arg Gln Gln Lys Glu Leu Leu Glu Lys Glu Asn Ile Met Lys Gln
 645 650 655
 Asn Lys Met Gln Leu Glu His His Gln Leu Ser Gln Phe Gln Leu Leu
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 Glu Gln Glu Ile Thr Lys Pro Val Glu Asn Asp Ile Ser Lys Trp Lys
 675 680 685
 Pro Ser Gln Ser Leu Pro Thr Thr Asn Ser Gly Val Ser Ala Gln Asp
 690 695 700
 Arg Gln Leu Leu Cys Phe Tyr Tyr Asp Gln Cys Glu Thr His Phe Ile
 705 710 715 720
 Ser Leu Leu Asn Ala Ile Asp Ala Leu Phe Ser Cys Val Ser Ser Ala
 725 730 735
 Gln Pro Pro Arg Ile Phe Val Ala His Ser Lys Phe Val Ile Leu Ser
 740 745 750
 Ala His Lys Leu Val Phe Ile Gly Asp Thr Leu Thr Arg Gln Val Thr
 755 760 765
 Ala Gln Asp Ile Arg Asn Lys Val Met Asn Ser Ser Asn Gln Leu Cys
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Tyr Pro Ser Thr Thr Ala Leu Gln Glu Met Val His Gln Val Thr Asp
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Phe Gln Val Ser Leu Ser Ser Ser Met Ser Val Ser Glu Leu Lys Ala

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| Val His Pro Ser Gly Val Ala Leu Gln Asp Arg Val Pro Leu Ala Ser | | | |
| 40 | 45 | 50 | |
| cag ggc ctg ggc cct ggc agc acg gtc ctg ctg gtg gtg gac aaa tgc 245 | | | |
| Gln Gly Leu Gly Pro Gly Ser Thr Val Leu Leu Val Val Asp Lys Cys | | | |
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| gac gaa cct ctg agc atc ctg gtg agg aat aac aag ggc cgc agc agc 293 | | | |
| Asp Glu Pro Leu Ser Ile Leu Val Arg Asn Asn Lys Gly Arg Ser Ser | | | |
| | 75 | 80 | 85 |
| acc tac gag gtg cgg ctg acg cag acc gtg gcc cac ctg aag cag caa 341 | | | |
| Thr Tyr Glu Val Arg Leu Thr Gln Thr Val Ala His Leu Lys Gln Gln | | | |
| 90 | 95 | 100 | |
| gtg agc ggg ctg gag ggt gtg cag gac gac ctg ttc tgg ctg acc ttc 389 | | | |
| Val Ser Gly Leu Glu Gly Val Gln Asp Asp Leu Phe Trp Leu Thr Phe | | | |
| 105 | 110 | 115 | |
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| Glu Gly Lys Pro Leu Glu Asp Gln Leu Pro Leu Gly Glu Tyr Gly Leu | | | |
| 120 | 125 | 130 | |
| aag ccc ctg agc acc gtg ttc atg aat ctg cgc ctg cgg gga ggc ggc 485 | | | |
| Lys Pro Leu Ser Thr Val Phe Met Asn Leu Arg Leu Arg Gly Gly Gly | | | |
| 135 | 140 | 145 | 150 |
| aca gag cct ggc ggg cgg agc taagggcctc caccagcatc cgagcaggat 536 | | | |
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Arg Val Pro Leu Ala Ser Gln Gly Leu Gly Pro Gly Ser Thr Val Leu

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Leu Val Val Asp Lys Cys Asp Glu Pro Leu Ser Ile Leu Val Arg Asn

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Asn Lys Gly Arg Ser Ser Thr Tyr Glu Val Arg Leu Thr Gln Thr Val

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Ala His Leu Lys Gln Gln Val Ser Gly Leu Glu Gly Val Gln Asp Asp

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Leu Phe Trp Leu Thr Phe Glu Gly Lys Pro Leu Glu Asp Gln Leu Pro

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| Arg Asn Glu Phe Gln Cys Gln Asp Gly Lys Cys Ile Ser Tyr Lys Trp | | | |
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| Gly Arg Val Asn Arg Cys Ile Pro Gln Phe Trp Arg Cys Asp Gly Gln | |
| 80 85 90 | |
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| Val Asp Cys Asp Asn Gly Ser Asp Glu Gln Gly Cys Pro Pro Lys Thr | |
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| Cys Ser Gln Asp Glu Phe Arg Cys His Asp Gly Lys Cys Ile Ser Arg | |
| 110 115 120 | |
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| Gln Phe Val Cys Asp Ser Asp Arg Asp Cys Leu Asp Gly Ser Asp Glu | |
| 125 130 135 140 | |
| gcc tcc tgc ccg gtg ctc acc tgt ggt ccc gcc agc ttc cag tgc aac | 481 |
| Ala Ser Cys Pro Val Leu Thr Cys Gly Pro Ala Ser Phe Gln Cys Asn | |
| 145 150 155 | |
| agc tcc acc tgc atc ccc cag ctg tgg gcc tgc gac aac gac ccc gac | 529 |
| Ser Ser Thr Cys Ile Pro Gln Leu Trp Ala Cys Asp Asn Asp Pro Asp | |
| 160 165 170 | |
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| 190 195 200 | |
| cta agt ggc gag tgc atc cac tcc agc tgg cgc tgt gat ggt ggc ccc | 673 |
| Leu Ser Gly Glu Cys Ile His Ser Ser Trp Arg Cys Asp Gly Gly Pro | |
| 205 210 215 220 | |
| gac tgc aag gac aaa tct gac gag gaa aac tgc gct gtg gcc acc tgt | 721 |
| Asp Cys Lys Asp Lys Ser Asp Glu Glu Asn Cys Ala Val Ala Thr Cys | |
| 225 230 235 | |
| cgc cct gac gaa ttc cag tgc tct gat gga aac tgc atc cat ggc agc | 769 |
| Arg Pro Asp Glu Phe Gln Cys Ser Asp Gly Asn Cys Ile His Gly Ser | |
| 240 245 250 | |
| cgg cag tgt gac cgg gaa tat gac tgc aag gac atg agc gat gaa gtt | 817 |
| Arg Gln Cys Asp Arg Glu Tyr Asp Cys Lys Asp Met Ser Asp Glu Val | |
| 255 260 265 | |
| ggc tgc gtt aat gtg aca ctc tgc gag gga ccc aac aag ttc aag tgt | 865 |
| Gly Cys Val Asn Val Thr Leu Cys Glu Gly Pro Asn Lys Phe Lys Cys | |
| 270 275 280 | |
| cac agc ggc gaa tgc atc acc ctg gac aaa gtc tgc aac atg gct aga | 913 |
| His Ser Gly Glu Cys Ile Thr Leu Asp Lys Val Cys Asn Met Ala Arg | |
| 285 290 295 300 | |
| gac tgc cgg gac tgg tca gat gaa ccc atc aaa gag tgc ggg acc aac | 961 |
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| 320 325 330 | |
| aag atc ggc tac gag tgc ctg tgc ccc gac ggc ttc cag ctg gtg gcc | 1057 |
| Lys Ile Gly Tyr Glu Cys Leu Cys Pro Asp Gly Phe Gln Leu Val Ala | |
| 335 340 345 | |
| cag cga aga tgc gaa gat atc gat gag tgt cag gat ccc gac acc tgc | 1105 |
| Gln Arg Arg Cys Glu Asp Ile Asp Glu Cys Gln Asp Pro Asp Thr Cys | |
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| agc cag ctc tgc gtg aac ctg gag ggt ggc tac aag tgc cag tgt gag | 1153 |
| Ser Gln Leu Cys Val Asn Leu Glu Gly Gly Tyr Lys Cys Gln Cys Glu | |
| 365 370 375 380 | |
| gaa ggc ttc cag ctg gac ccc cac acg aag gcc tgc aag gct gtg ggc | 1201 |
| Glu Gly Phe Gln Leu Asp Pro His Thr Lys Ala Cys Lys Ala Val Gly | |
| 385 390 395 | |
| tcc atc gcc tac ctc ttc ttc acc aac cgg cac gag gtc agg aag atg | 1249 |
| Ser Ile Ala Tyr Leu Phe Phe Thr Asn Arg His Glu Val Arg Lys Met | |
| 400 405 410 | |
| acg ctg gac cgg agc gag tac acc agc ctc atc ccc aac ctg agg aac | 1297 |
| Thr Leu Asp Arg Ser Glu Tyr Thr Ser Leu Ile Pro Asn Leu Arg Asn | |
| 415 420 425 | |
| gtg gtc gct ctg gac acg gag gtg gcc agc aat aga atc tac tgg tct | 1345 |
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| 430 435 440 | |

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| Asp | Leu | Ser | Gln | Arg | Met | Ile | Cys | Ser | Thr | Gln | Leu | Asp | Arg | Ala | His | |
| 445 | | | | | 450 | | | | | 455 | | | | | 460 | |
| ggc | gtc | tct | tcc | tat | gac | acc | gtc | atc | agc | agg | gac | atc | cag | gcc | ccc | 1441 |
| Gly | Val | Ser | Ser | Tyr | Asp | Thr | Val | Ile | Ser | Arg | Asp | Ile | Gln | Ala | Pro | |
| | | | | 465 | | | | | 470 | | | | | 475 | | |
| gac | ggg | ctg | gct | gtg | gac | tgg | atc | cac | agc | aac | atc | tac | tgg | acc | gac | 1489 |
| Asp | Gly | Leu | Ala | Val | Asp | Trp | Ile | His | Ser | Asn | Ile | Tyr | Trp | Thr | Asp | |
| | | | 480 | | | | | 485 | | | | | 490 | | | |
| tct | gtc | ctg | ggc | act | gtc | tct | gtt | gcg | gat | acc | aag | ggc | gtg | aag | agg | 1537 |
| Ser | Val | Leu | Gly | Thr | Val | Ser | Val | Ala | Asp | Thr | Lys | Gly | Val | Lys | Arg | |
| | | 495 | | | | | 500 | | | | | 505 | | | | |
| aaa | acg | tta | ttc | agg | gag | aac | ggc | tcc | aag | cca | agg | gcc | atc | gtg | gtg | 1585 |
| Lys | Thr | Leu | Phe | Arg | Glu | Asn | Gly | Ser | Lys | Pro | Arg | Ala | Ile | Val | Val | |
| | 510 | | | | | 515 | | | | 520 | | | | | | |
| gat | cct | gtt | cat | ggc | ttc | atg | tac | tgg | act | gac | tgg | gga | act | ccc | gcc | 1633 |
| Asp | Pro | Val | His | Gly | Phe | Met | Tyr | Trp | Thr | Asp | Trp | Gly | Thr | Pro | Ala | |
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| aag | atc | aag | aaa | ggg | ggc | ctg | aat | ggt | gtg | gac | atc | tac | tcg | ctg | gtg | 1681 |
| Lys | Ile | Lys | Lys | Gly | Gly | Leu | Asn | Gly | Val | Asp | Ile | Tyr | Ser | Leu | Val | |
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| act | gaa | aac | att | cag | tgg | ccc | aat | ggc | atc | acc | cta | gat | ctc | ctc | agt | 1729 |
| Thr | Glu | Asn | Ile | Gln | Trp | Pro | Asn | Gly | Ile | Thr | Leu | Asp | Leu | Leu | Ser | |
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PH-1064PCT-US seq.TXT

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ctg gcc cac ccc ttc tcc ttg gcc gtc ttt gag gac aaa gta ttt tgg 1873
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aca gat atc atc aac gaa gcc att ttc agt gcc aac cgc ctc aca ggt 1921
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Val Leu Phe His Asn Leu Thr Gln Pro Arg Gly Val Asn Trp Cys Glu
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agg acc acc ctg agc aat ggc ggc tgc cag tat ctg tgc ctc cct gcc 2065
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| gct gca gtg gcc acc cag gag aca tcc acc gtc agg cta aag gtc agc | 2209 |
| Ala Ala Val Ala Thr Gln Glu Thr Ser Thr Val Arg Leu Lys Val Ser | |
| 720 725 730 | |
| tcc aca gcc gta agg aca cag cac aca acc acc cgg cct gtt ccc gac | 2257 |
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| 735 740 745 | |
| acc tcc cgg ctg cct ggg gcc acc cct ggg ctc acc acg gtg gag ata | 2305 |
| Thr Ser Arg Leu Pro Gly Ala Thr Pro Gly Leu Thr Thr Val Glu Ile | |
| 750 755 760 | |
| gtg aca atg tct cac caa gct ctg ggc gac gtt gct ggc aga gga aat | 2353 |
| Val Thr Met Ser His Gln Ala Leu Gly Asp Val Ala Gly Arg Gly Asn | |
| 765 770 775 780 | |
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| Glu Lys Lys Pro Ser Ser Val Arg Ala Leu Ser Ile Val Leu Pro Ile | |
| 785 790 795 | |
| gtg ctc ctc gtc ttc ctt tgc ctg ggg gtc ttc ctt cta tgg aag aac | 2449 |
| Val Leu Leu Val Phe Leu Cys Leu Gly Val Phe Leu Leu Trp Lys Asn | |
| 800 805 810 | |
| tgg cgg ctt aag aac atc aac agc atc aac ttt gac aac ccc gtc tat | 2497 |
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| 815 820 825 | |

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<212> PRT

<213> Homo sapiens

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      35              40              45
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Ser Val Thr Cys Lys Ser Gly Asp Phe Ser Cys Gly Gly Arg Val Asn
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Arg Cys Ile Pro Gln Phe Trp Arg Cys Asp Gly Gln Val Asp Cys Asp
      85              90              95
Asn Gly Ser Asp Glu Gln Gly Cys Pro Pro Lys Thr Cys Ser Gln Asp
      100              105              110
Glu Phe Arg Cys His Asp Gly Lys Cys Ile Ser Arg Gln Phe Val Cys
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| | | 165 | | 170 | | 175 | | | | | | | | | |
| Ser | Asp | Glu | Trp | Pro | Gln | Arg | Cys | Arg | Gly | Leu | Tyr | Val | Phe | Gln | Gly |
| | | 180 | | 185 | | 190 | | | | | | | | | |
| Asp | Ser | Ser | Pro | Cys | Ser | Ala | Phe | Glu | Phe | His | Cys | Leu | Ser | Gly | Glu |
| | | 195 | | 200 | | 205 | | | | | | | | | |
| Cys | Ile | His | Ser | Ser | Trp | Arg | Cys | Asp | Gly | Gly | Pro | Asp | Cys | Lys | Asp |
| | | 210 | | 215 | | 220 | | | | | | | | | |
| Lys | Ser | Asp | Glu | Glu | Asn | Cys | Ala | Val | Ala | Thr | Cys | Arg | Pro | Asp | Glu |
| 225 | | | | 230 | | 235 | | | | | | | | | 240 |
| Phe | Gln | Cys | Ser | Asp | Gly | Asn | Cys | Ile | His | Gly | Ser | Arg | Gln | Cys | Asp |
| | | 245 | | 250 | | 255 | | | | | | | | | |
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| | | 275 | | 280 | | 285 | | | | | | | | | |
| Cys | Ile | Thr | Leu | Asp | Lys | Val | Cys | Asn | Met | Ala | Arg | Asp | Cys | Arg | Asp |
| | | 290 | | 295 | | 300 | | | | | | | | | |
| Trp | Ser | Asp | Glu | Pro | Ile | Lys | Glu | Cys | Gly | Thr | Asn | Glu | Cys | Leu | Asp |
| 305 | | | | 310 | | 315 | | | | | | | | | 320 |
| Asn | Asn | Gly | Gly | Cys | Ser | His | Val | Cys | Asn | Asp | Leu | Lys | Ile | Gly | Tyr |
| | | 325 | | 330 | | 335 | | | | | | | | | |
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PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
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| 355 | 360 | 365 |
| Val Asn Leu Glu Gly Gly Tyr Lys Cys Gln Cys Glu Glu Gly Phe Gln | | |
| 370 | 375 | 380 |
| Leu Asp Pro His Thr Lys Ala Cys Lys Ala Val Gly Ser Ile Ala Tyr | | |
| 385 | 390 | 395 |
| Leu Phe Phe Thr Asn Arg His Glu Val Arg Lys Met Thr Leu Asp Arg | | |
| 405 | 410 | 415 |
| Ser Glu Tyr Thr Ser Leu Ile Pro Asn Leu Arg Asn Val Val Ala Leu | | |
| 420 | 425 | 430 |
| Asp Thr Glu Val Ala Ser Asn Arg Ile Tyr Trp Ser Asp Leu Ser Gln | | |
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| Arg Met Ile Cys Ser Thr Gln Leu Asp Arg Ala His Gly Val Ser Ser | | |
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| Tyr Asp Thr Val Ile Ser Arg Asp Ile Gln Ala Pro Asp Gly Leu Ala | | |
| 465 | 470 | 475 |
| Val Asp Trp Ile His Ser Asn Ile Tyr Trp Thr Asp Ser Val Leu Gly | | |
| 485 | 490 | 495 |
| Thr Val Ser Val Ala Asp Thr Lys Gly Val Lys Arg Lys Thr Leu Phe | | |
| 500 | 505 | 510 |
| Arg Glu Asn Gly Ser Lys Pro Arg Ala Ile Val Val Asp Pro Val His | | |
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PH-1064PCT-US seq.TXT

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| 545 | 550 | 555 | 560 |
| Gln Trp Pro Asn Gly Ile Thr Leu Asp Leu Leu Ser Gly Arg Leu Tyr | | | |
| | 565 | 570 | 575 |
| Trp Val Asp Ser Lys Leu His Ser Ile Ser Ser Ile Asp Val Asn Gly | | | |
| | 580 | 585 | 590 |
| Gly Asn Arg Lys Thr Ile Leu Glu Asp Glu Lys Arg Leu Ala His Pro | | | |
| | 595 | 600 | 605 |
| Phe Ser Leu Ala Val Phe Glu Asp Lys Val Phe Trp Thr Asp Ile Ile | | | |
| | 610 | 615 | 620 |
| Asn Glu Ala Ile Phe Ser Ala Asn Arg Leu Thr Gly Ser Asp Val Asn | | | |
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| Leu Leu Ala Glu Asn Leu Leu Ser Pro Glu Asp Met Val Leu Phe His | | | |
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| | 660 | 665 | 670 |
| Ser Asn Gly Gly Cys Gln Tyr Leu Cys Leu Pro Ala Pro Gln Ile Asn | | | |
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| Pro His Ser Pro Lys Phe Thr Cys Ala Cys Pro Asp Gly Met Leu Leu | | | |
| | 690 | 695 | 700 |
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| Thr Gln Glu Thr Ser Thr Val Arg Leu Lys Val Ser Ser Thr Ala Val | | | |

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| | 725 | 730 | 735 |
| Arg Thr Gln His Thr Thr Thr Arg Pro Val Pro Asp Thr Ser Arg Leu | | | |
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| Pro Gly Ala Thr Pro Gly Leu Thr Thr Val Glu Ile Val Thr Met Ser | | | |
| | 755 | 760 | 765 |
| His Gln Ala Leu Gly Asp Val Ala Gly Arg Gly Asn Glu Lys Lys Pro | | | |
| | 770 | 775 | 780 |
| Ser Ser Val Arg Ala Leu Ser Ile Val Leu Pro Ile Val Leu Leu Val | | | |
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| Phe Leu Cys Leu Gly Val Phe Leu Leu Trp Lys Asn Trp Arg Leu Lys | | | 800 |
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| Asn Ile Asn Ser Ile Asn Phe Asp Asn Pro Val Tyr Gln Lys Thr Thr | | | |
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| Glu Asp Glu Val His Ile Cys His Asn Gln Asp Gly Tyr Ser Tyr Pro | | | |
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Leu Leu Leu Ser Ile Ile Val Leu His Val Ala Val Leu Val Leu Leu

5

10

15

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25

30

35

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50

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75

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85

90

95

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 50 55 60
 Val Gln Ala Thr Met Ile Leu Ser Ile Ile Phe Ser Ile Leu Ser Leu
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 Phe Leu Phe Phe Cys Gln Leu Phe Thr Leu Thr Lys Gly Gly Arg Phe
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 Tyr Ile Thr Gly Ile Phe Gln Ile Leu Ala Gly Leu Cys Val Met Ser

PH-1064PCT-US seq.TXT

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PH-1064PCT-US seq.TXT

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| cgg tgt cag ctc cag gtt cag gga gag ccc ccc gag gta cat tgg ctt | | | 245 |
| Arg Cys Gln Leu Gln Val Gln Gly Glu Pro Pro Glu Val His Trp Leu | | | |
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| cgg gat gga cag atc ctg gag ctc gcg gac agc acc cag acc cag gtg | | | 293 |
| Arg Asp Gly Gln Ile Leu Glu Leu Ala Asp Ser Thr Gln Thr Gln Val | | | |
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| ccc ctg ggt gag gat gaa cag gat gac tgg ata gtg gtc agc cag ctc | | | 341 |
| Pro Leu Gly Glu Asp Glu Gln Asp Asp Trp Ile Val Val Ser Gln Leu | | | |
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| aga atc acc tcc ctg cag ctt tcc gac acg gga cag tac cag tgt ttg | | | 389 |
| Arg Ile Thr Ser Leu Gln Leu Ser Asp Thr Gly Gln Tyr Gln Cys Leu | | | |
| 105 | 110 | 115 | |
| gtg ttt ctg gga cat cag acc ttc gtg tcc cag cct ggc tat gtt ggg | | | 437 |
| Val Phe Leu Gly His Gln Thr Phe Val Ser Gln Pro Gly Tyr Val Gly | | | |
| 120 | 125 | 130 | |
| ctg gag ggc ttg cct tac ttc ctg gag gag ccc gaa gac agg act gtg | | | 485 |
| Leu Glu Gly Leu Pro Tyr Phe Leu Glu Glu Pro Glu Asp Arg Thr Val | | | |
| 135 | 140 | 145 | 150 |
| gcc gcc aac acc ccc ttc aac ctg agc tgc caa gct cag gga ccc cca | | | 533 |
| Ala Ala Asn Thr Pro Phe Asn Leu Ser Cys Gln Ala Gln Gly Pro Pro | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|-----|
| 155 | 160 | 165 | |
| gag ccc gtg gac cta ctc tgg ctc cag gat gct gtc ccc ctg gcc acg | | | 581 |
| Glu Pro Val Asp Leu Leu Trp Leu Gln Asp Ala Val Pro Leu Ala Thr | | | |
| 170 | 175 | 180 | |
| gct cca ggt cac ggc ccc cag cgc agc ctg cat gtt cca ggg ctg aac | | | 629 |
| Ala Pro Gly His Gly Pro Gln Arg Ser Leu His Val Pro Gly Leu Asn | | | |
| 185 | 190 | 195 | |
| aag aca tcc tct ttc tcc tgc gaa gcc cat aac gcc aag ggg gtc acc | | | 677 |
| Lys Thr Ser Ser Phe Ser Cys Glu Ala His Asn Ala Lys Gly Val Thr | | | |
| 200 | 205 | 210 | |
| aca tcc cgc aca gcc acc atc aca gtg ctc ccc cag cag ccc cgt aac | | | 725 |
| Thr Ser Arg Thr Ala Thr Ile Thr Val Leu Pro Gln Gln Pro Arg Asn | | | |
| 215 | 220 | 225 | 230 |
| ctc cac ctg gtc tcc cgc caa ccc acg gag ctg gag gtg gct tgg act | | | 773 |
| Leu His Leu Val Ser Arg Gln Pro Thr Glu Leu Glu Val Ala Trp Thr | | | |
| 235 | 240 | 245 | |
| cca ggc ctg agc ggc atc tac ccc ctg acc cac tgc acc ctg cag gct | | | 821 |
| Pro Gly Leu Ser Gly Ile Tyr Pro Leu Thr His Cys Thr Leu Gln Ala | | | |
| 250 | 255 | 260 | |
| gtg ctg tca gac gat ggg atg ggc atc cag gcg gga gaa cca gac ccc | | | 869 |
| Val Leu Ser Asp Asp Gly Met Gly Ile Gln Ala Gly Glu Pro Asp Pro | | | |
| 265 | 270 | 275 | |
| cca gag gag ccc ctc acc tcg caa gca tcc gtg ccc ccc cat cag ctt | | | 917 |
| Pro Glu Glu Pro Leu Thr Ser Gln Ala Ser Val Pro Pro His Gln Leu | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|-----|-----|
| 280 | 285 | 290 | |
| cgg cta ggc agc ctc cat cct cac ccc cct tat cac atc cgc gtg gca | 965 | | |
| Arg Leu Gly Ser Leu His Pro His Pro Pro Tyr His Ile Arg Val Ala | | | |
| 295 | 300 | 305 | 310 |
| tgc acc agc agc cag ggc ccc tca tcc tgg acc cac tgg ctt cct gtg | 1013 | | |
| Cys Thr Ser Ser Gln Gly Pro Ser Ser Trp Thr His Trp Leu Pro Val | | | |
| | 315 | 320 | 325 |
| gag acg ccg gag gga gtg ccc ctg ggc ccc cct gag aac att agt gct | 1061 | | |
| Glu Thr Pro Glu Gly Val Pro Leu Gly Pro Pro Glu Asn Ile Ser Ala | | | |
| | 330 | 335 | 340 |
| acg cgg aat ggg agc cag gcc ttc gtg cat tgg caa gag ccc cgg gcg | 1109 | | |
| Thr Arg Asn Gly Ser Gln Ala Phe Val His Trp Gln Glu Pro Arg Ala | | | |
| | 345 | 350 | 355 |
| ccc ctg cag ggt acc ctg tta ggg tac cgg ctg gcg tat caa ggc cag | 1157 | | |
| Pro Leu Gln Gly Thr Leu Leu Gly Tyr Arg Leu Ala Tyr Gln Gly Gln | | | |
| | 360 | 365 | 370 |
| gac acc cca gag gtg cta atg gac ata ggg cta agg caa gag gtg acc | 1205 | | |
| Asp Thr Pro Glu Val Leu Met Asp Ile Gly Leu Arg Gln Glu Val Thr | | | |
| 375 | 380 | 385 | 390 |
| ctg gag ctg cag ggg gac ggg tct gtg tcc aat ctg aca gtg tgt gtg | 1253 | | |
| Leu Glu Leu Gln Gly Asp Gly Ser Val Ser Asn Leu Thr Val Cys Val | | | |
| | 395 | 400 | 405 |
| gca gcc tac act gct gct ggg gat gga ccc tgg agc ctc cca gta ccc | 1301 | | |
| Ala Ala Tyr Thr Ala Ala Gly Asp Gly Pro Trp Ser Leu Pro Val Pro | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 410 | 415 | 420 | |
| ctg gag gcc tgg cgc cca ggg gaa gca cag cca gtc cac cag ctg gtg | | | 1349 |
| Leu Glu Ala Trp Arg Pro Gly Glu Ala Gln Pro Val His Gln Leu Val | | | |
| 425 | 430 | 435 | |
| aag gaa cct tca act cct gcc ttc tcg tgg ccc tgg tgg tat gta ctg | | | 1397 |
| Lys Glu Pro Ser Thr Pro Ala Phe Ser Trp Pro Trp Trp Tyr Val Leu | | | |
| 440 | 445 | 450 | |
| cta gga gca gtc gtg gcc gct gcc tgt gtc ctc atc ttg gct ctc ttc | | | 1445 |
| Leu Gly Ala Val Val Ala Ala Ala Cys Val Leu Ile Leu Ala Leu Phe | | | |
| 455 | 460 | 465 | 470 |
| ctt gtc cac cgg cga aag aag gag acc cgt tat gga gaa gtg ttt gaa | | | 1493 |
| Leu Val His Arg Arg Lys Lys Glu Thr Arg Tyr Gly Glu Val Phe Glu | | | |
| 475 | 480 | 485 | |
| cca aca gtg gaa aga ggt gaa ctg gta gtc agg tac cgc gtg cgc aag | | | 1541 |
| Pro Thr Val Glu Arg Gly Glu Leu Val Val Arg Tyr Arg Val Arg Lys | | | |
| 490 | 495 | 500 | |
| tcc tac agt cgt cgg acc act gaa gct acc ttg aac agc ctg ggc atc | | | 1589 |
| Ser Tyr Ser Arg Arg Thr Thr Glu Ala Thr Leu Asn Ser Leu Gly Ile | | | |
| 505 | 510 | 515 | |
| agt gaa gag ctg aag gag aag ctg cgg gat gtg atg gtg gac cgg cac | | | 1637 |
| Ser Glu Glu Leu Lys Glu Lys Leu Arg Asp Val Met Val Asp Arg His | | | |
| 520 | 525 | 530 | |
| aag gtg gcc ctg ggg aag act ctg gga gag gga gag ttt gga gct gtg | | | 1685 |
| Lys Val Ala Leu Gly Lys Thr Leu Gly Glu Gly Glu Phe Gly Ala Val | | | |

PH-1064PCT-US seq.TXT

| | | | | |
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| atg gaa ggc cag ctc aac cag gac gac tcc atc ctc aag gtg gct gtg | | | | 1733 |
| Met Glu Gly Gln Leu Asn Gln Asp Asp Ser Ile Leu Lys Val Ala Val | | | | |
| | 555 | 560 | 565 | |
| aag acg atg aag att gcc atc tgc acg agg tca gag ctg gag gat ttc | | | | 1781 |
| Lys Thr Met Lys Ile Ala Ile Cys Thr Arg Ser Glu Leu Glu Asp Phe | | | | |
| | 570 | 575 | 580 | |
| ctg agt gaa gcg gtc tgc atg aag gaa ttt gac cat ccc aac gtc atg | | | | 1829 |
| Leu Ser Glu Ala Val Cys Met Lys Glu Phe Asp His Pro Asn Val Met | | | | |
| | 585 | 590 | 595 | |
| agg ctc atc ggt gtc tgt ttc cag ggt tct gaa cga gag agc ttc cca | | | | 1877 |
| Arg Leu Ile Gly Val Cys Phe Gln Gly Ser Glu Arg Glu Ser Phe Pro | | | | |
| 600 | 605 | 610 | | |
| gca cct gtg gtc atc tta cct ttc atg aaa cat gga gac cta cac agc | | | | 1925 |
| Ala Pro Val Val Ile Leu Pro Phe Met Lys His Gly Asp Leu His Ser | | | | |
| 615 | 620 | 625 | 630 | |
| ttc ctc ctc tat tcc cgg ctc ggg ggc cag cca gtg tac ctg ccc act | | | | 1973 |
| Phe Leu Leu Tyr Ser Arg Leu Gly Gly Gln Pro Val Tyr Leu Pro Thr | | | | |
| | 635 | 640 | 645 | |
| cag atg cta gtg aag ttc atg gca gac atc gcc agt ggc atg gag tat | | | | 2021 |
| Gln Met Leu Val Lys Phe Met Ala Asp Ile Ala Ser Gly Met Glu Tyr | | | | |
| | 650 | 655 | 660 | |
| ctg agt acc aag aga ttc ata cac cgg gac ctg gcg gcc agg aac tgc | | | | 2069 |
| Leu Ser Thr Lys Arg Phe Ile His Arg Asp Leu Ala Ala Arg Asn Cys | | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 665 | 670 | 675 | |
| atg ctg aat gag aac atg tcc gtg tgt gtg gcg gac ttc ggg ctc tcc | | | 2117 |
| Met Leu Asn Glu Asn Met Ser Val Cys Val Ala Asp Phe Gly Leu Ser | | | |
| 680 | 685 | 690 | |
| aag aag atc tac aat ggg gac tac tac cgc cag gga cgt atc gcc aag | | | 2165 |
| Lys Lys Ile Tyr Asn Gly Asp Tyr Tyr Arg Gln Gly Arg Ile Ala Lys | | | |
| 695 | 700 | 705 | 710 |
| atg cca gtc aag tgg att gcc att gag agt cta gct gac cgt gtc tac | | | 2213 |
| Met Pro Val Lys Trp Ile Ala Ile Glu Ser Leu Ala Asp Arg Val Tyr | | | |
| | 715 | 720 | 725 |
| acc agc aag agc gat gtg tgg tcc ttc ggg gtg aca atg tgg gag att | | | 2261 |
| Thr Ser Lys Ser Asp Val Trp Ser Phe Gly Val Thr Met Trp Glu Ile | | | |
| | 730 | 735 | 740 |
| gcc aca aga ggc caa acc cca tat ccg ggc gtg gag aac agc gag att | | | 2309 |
| Ala Thr Arg Gly Gln Thr Pro Tyr Pro Gly Val Glu Asn Ser Glu Ile | | | |
| | 745 | 750 | 755 |
| tat gac tat ctg cgc cag gga aat cgc ctg aag cag cct gcg gac tgt | | | 2357 |
| Tyr Asp Tyr Leu Arg Gln Gly Asn Arg Leu Lys Gln Pro Ala Asp Cys | | | |
| | 760 | 765 | 770 |
| ctg gat gga ctg tat gcc ttg atg tcg cgg tgc tgg gag cta aat ccc | | | 2405 |
| Leu Asp Gly Leu Tyr Ala Leu Met Ser Arg Cys Trp Glu Leu Asn Pro | | | |
| 775 | 780 | 785 | 790 |
| cag gac cgg cca agt ttt aca gag ctg cgg gaa gat ttg gag aac aca | | | 2453 |
| Gln Asp Arg Pro Ser Phe Thr Glu Leu Arg Glu Asp Leu Glu Asn Thr | | | |

PH-1064PCT-US seq.TXT

795

800

805

ctg aag gcc ttg cct cct gcc cag gag cct gac gaa atc ctc tat gtc 2501

Leu Lys Ala Leu Pro Pro Ala Gln Glu Pro Asp Glu Ile Leu Tyr Val

810

815

820

aac atg gat gag ggt gga ggt tat cct gaa ccc cct gga gct gca gga 2549

Asn Met Asp Glu Gly Gly Gly Tyr Pro Glu Pro Pro Gly Ala Ala Gly

825

830

835

gga gct gac ccc cca acc cag cca gac cct aag gat tcc tgt agc tgc 2597

Gly Ala Asp Pro Pro Thr Gln Pro Asp Pro Lys Asp Ser Cys Ser Cys

840

845

850

ctc act gcg gct gag gtc cat cct gct gga cgc tat gtc ctc tgc cct 2645

Leu Thr Ala Ala Glu Val His Pro Ala Gly Arg Tyr Val Leu Cys Pro

855

860

865

870

tcc aca acc cct agc ccc gct cag cct gct gat agg ggc tcc cca gca 2693

Ser Thr Thr Pro Ser Pro Ala Gln Pro Ala Asp Arg Gly Ser Pro Ala

875

880

885

gcc cca ggg cag gag gat ggt gcc tgagacaacc ctccacctgg tactccctct 2747

Ala Pro Gly Gln Glu Asp Gly Ala

890

caggatccaa gctaagcact gccactgggg gaaactccac ctccccactt tcccacccca 2807

cgcttatcc ccacttgacg ccctgtcttc ctacctatcc cacctccatc ccagacaggt 2867

ccctggcctt ctctgtgcag tagcatcacc ttgaaagcag tagcatcacc atctgtaaaa 2927

ggaaggggtt ggattgcaat atctgaagcc ctcccaggtg ttaacattcc aagactctag 2987

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ttggttctaa ggacctgaaa ttccaaagtc tctaattcta ttaaagtgct aaggttctaa 3107
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<210> 26

<211> 894

<212> PRT

<213> Homo sapiens

<400> 26

| | | | | | | | | | | | | | | | |
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| Met | Ala | Trp | Arg | Cys | Pro | Arg | Met | Gly | Arg | Val | Pro | Leu | Ala | Trp | Cys |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Leu | Ala | Leu | Cys | Gly | Trp | Ala | Cys | Met | Ala | Pro | Arg | Gly | Thr | Gln | Ala |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Glu | Glu | Ser | Pro | Phe | Val | Gly | Asn | Pro | Gly | Asn | Ile | Thr | Gly | Ala | Arg |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Leu | Thr | Gly | Thr | Leu | Arg | Cys | Gln | Leu | Gln | Val | Gln | Gly | Glu | Pro |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Pro | Glu | Val | His | Trp | Leu | Arg | Asp | Gly | Gln | Ile | Leu | Glu | Leu | Ala | Asp |
| | 65 | | | | 70 | | | | | 75 | | | | 80 | |
| Ser | Thr | Gln | Thr | Gln | Val | Pro | Leu | Gly | Glu | Asp | Glu | Gln | Asp | Asp | Trp |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Ile | Val | Val | Ser | Gln | Leu | Arg | Ile | Thr | Ser | Leu | Gln | Leu | Ser | Asp | Thr |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gly | Gln | Tyr | Gln | Cys | Leu | Val | Phe | Leu | Gly | His | Gln | Thr | Phe | Val | Ser |
| | | 115 | | | | | | 120 | | | | | 125 | | |
| Gln | Pro | Gly | Tyr | Val | Gly | Leu | Glu | Gly | Leu | Pro | Tyr | Phe | Leu | Glu | Glu |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 130 | 135 | 140 |
| Pro Glu Asp Arg Thr Val Ala Ala Asn Thr Pro Phe Asn Leu Ser Cys | | |
| 145 | 150 | 155 |
| Gln Ala Gln Gly Pro Pro Glu Pro Val Asp Leu Leu Trp Leu Gln Asp | | |
| 165 | 170 | 175 |
| Ala Val Pro Leu Ala Thr Ala Pro Gly His Gly Pro Gln Arg Ser Leu | | |
| 180 | 185 | 190 |
| His Val Pro Gly Leu Asn Lys Thr Ser Ser Phe Ser Cys Glu Ala His | | |
| 195 | 200 | 205 |
| Asn Ala Lys Gly Val Thr Thr Ser Arg Thr Ala Thr Ile Thr Val Leu | | |
| 210 | 215 | 220 |
| Pro Gln Gln Pro Arg Asn Leu His Leu Val Ser Arg Gln Pro Thr Glu | | |
| 225 | 230 | 235 |
| Leu Glu Val Ala Trp Thr Pro Gly Leu Ser Gly Ile Tyr Pro Leu Thr | | |
| 245 | 250 | 255 |
| His Cys Thr Leu Gln Ala Val Leu Ser Asp Asp Gly Met Gly Ile Gln | | |
| 260 | 265 | 270 |
| Ala Gly Glu Pro Asp Pro Pro Glu Glu Pro Leu Thr Ser Gln Ala Ser | | |
| 275 | 280 | 285 |
| Val Pro Pro His Gln Leu Arg Leu Gly Ser Leu His Pro His Pro Pro | | |
| 290 | 295 | 300 |
| Tyr His Ile Arg Val Ala Cys Thr Ser Ser Gln Gly Pro Ser Ser Trp | | |
| 305 | 310 | 315 |
| Thr His Trp Leu Pro Val Glu Thr Pro Glu Gly Val Pro Leu Gly Pro | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 325 | 330 | 335 |
| Pro Glu Asn Ile Ser Ala Thr Arg Asn Gly Ser Gln Ala Phe Val His | | |
| 340 | 345 | 350 |
| Trp Gln Glu Pro Arg Ala Pro Leu Gln Gly Thr Leu Leu Gly Tyr Arg | | |
| 355 | 360 | 365 |
| Leu Ala Tyr Gln Gly Gln Asp Thr Pro Glu Val Leu Met Asp Ile Gly | | |
| 370 | 375 | 380 |
| Leu Arg Gln Glu Val Thr Leu Glu Leu Gln Gly Asp Gly Ser Val Ser | | |
| 385 | 390 | 395 |
| Asn Leu Thr Val Cys Val Ala Ala Tyr Thr Ala Ala Gly Asp Gly Pro | | |
| 405 | 410 | 415 |
| Trp Ser Leu Pro Val Pro Leu Glu Ala Trp Arg Pro Gly Glu Ala Gln | | |
| 420 | 425 | 430 |
| Pro Val His Gln Leu Val Lys Glu Pro Ser Thr Pro Ala Phe Ser Trp | | |
| 435 | 440 | 445 |
| Pro Trp Trp Tyr Val Leu Leu Gly Ala Val Val Ala Ala Ala Cys Val | | |
| 450 | 455 | 460 |
| Leu Ile Leu Ala Leu Phe Leu Val His Arg Arg Lys Lys Glu Thr Arg | | |
| 465 | 470 | 475 |
| Tyr Gly Glu Val Phe Glu Pro Thr Val Glu Arg Gly Glu Leu Val Val | | |
| 485 | 490 | 495 |
| Arg Tyr Arg Val Arg Lys Ser Tyr Ser Arg Arg Thr Thr Glu Ala Thr | | |
| 500 | 505 | 510 |
| Leu Asn Ser Leu Gly Ile Ser Glu Glu Leu Lys Glu Lys Leu Arg Asp | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 515 | 520 | 525 |
| Val Met Val Asp Arg His Lys Val Ala Leu Gly Lys Thr Leu Gly Glu | | |
| 530 | 535 | 540 |
| Gly Glu Phe Gly Ala Val Met Glu Gly Gln Leu Asn Gln Asp Asp Ser | | |
| 545 | 550 | 555 |
| Ile Leu Lys Val Ala Val Lys Thr Met Lys Ile Ala Ile Cys Thr Arg | | |
| 565 | 570 | 575 |
| Ser Glu Leu Glu Asp Phe Leu Ser Glu Ala Val Cys Met Lys Glu Phe | | |
| 580 | 585 | 590 |
| Asp His Pro Asn Val Met Arg Leu Ile Gly Val Cys Phe Gln Gly Ser | | |
| 595 | 600 | 605 |
| Glu Arg Glu Ser Phe Pro Ala Pro Val Val Ile Leu Pro Phe Met Lys | | |
| 610 | 615 | 620 |
| His Gly Asp Leu His Ser Phe Leu Leu Tyr Ser Arg Leu Gly Gly Gln | | |
| 625 | 630 | 635 |
| Pro Val Tyr Leu Pro Thr Gln Met Leu Val Lys Phe Met Ala Asp Ile | | |
| 645 | 650 | 655 |
| Ala Ser Gly Met Glu Tyr Leu Ser Thr Lys Arg Phe Ile His Arg Asp | | |
| 660 | 665 | 670 |
| Leu Ala Ala Arg Asn Cys Met Leu Asn Glu Asn Met Ser Val Cys Val | | |
| 675 | 680 | 685 |
| Ala Asp Phe Gly Leu Ser Lys Lys Ile Tyr Asn Gly Asp Tyr Tyr Arg | | |
| 690 | 695 | 700 |
| Gln Gly Arg Ile Ala Lys Met Pro Val Lys Trp Ile Ala Ile Glu Ser | | |

PH-1064PCT-US seq.TXT

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|---|-----|-----|-----|
| 705 | 710 | 715 | 720 |
| Leu Ala Asp Arg Val Tyr Thr Ser Lys Ser Asp Val Trp Ser Phe Gly | | | |
| | 725 | 730 | 735 |
| Val Thr Met Trp Glu Ile Ala Thr Arg Gly Gln Thr Pro Tyr Pro Gly | | | |
| | 740 | 745 | 750 |
| Val Glu Asn Ser Glu Ile Tyr Asp Tyr Leu Arg Gln Gly Asn Arg Leu | | | |
| | 755 | 760 | 765 |
| Lys Gln Pro Ala Asp Cys Leu Asp Gly Leu Tyr Ala Leu Met Ser Arg | | | |
| | 770 | 775 | 780 |
| Cys Trp Glu Leu Asn Pro Gln Asp Arg Pro Ser Phe Thr Glu Leu Arg | | | |
| 785 | 790 | 795 | 800 |
| Glu Asp Leu Glu Asn Thr Leu Lys Ala Leu Pro Pro Ala Gln Glu Pro | | | |
| | 805 | 810 | 815 |
| Asp Glu Ile Leu Tyr Val Asn Met Asp Glu Gly Gly Gly Tyr Pro Glu | | | |
| | 820 | 825 | 830 |
| Pro Pro Gly Ala Ala Gly Gly Ala Asp Pro Pro Thr Gln Pro Asp Pro | | | |
| | 835 | 840 | 845 |
| Lys Asp Ser Cys Ser Cys Leu Thr Ala Ala Glu Val His Pro Ala Gly | | | |
| | 850 | 855 | 860 |
| Arg Tyr Val Leu Cys Pro Ser Thr Thr Pro Ser Pro Ala Gln Pro Ala | | | |
| 865 | 870 | 875 | 880 |
| Asp Arg Gly Ser Pro Ala Ala Pro Gly Gln Glu Asp Gly Ala | | | |
| | 885 | 890 | |

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<210> 27

<211> 3781

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<222> (4)..(2994)

<400> 27

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ttc ggc gtc aac gag agt acg ggg ctg agc ctg gaa cag gtc aag aag      96
    Phe Gly Val Asn Glu Ser Thr Gly Leu Ser Leu Glu Gln Val Lys Lys
                20                25                30
ctt aag gag aga tgg ggc tcc aac gag tta ccg gct gaa gaa gga aaa     144
    Leu Lys Glu Arg Trp Gly Ser Asn Glu Leu Pro Ala Glu Glu Gly Lys
                35                40                45
acc ttg ctg gaa ctt gtg att gag cag ttt gaa gac ttg cta gtt agg     192
    Thr Leu Leu Glu Leu Val Ile Glu Gln Phe Glu Asp Leu Leu Val Arg
                50                55                60
att tta tta ctg gca gca tgt ata tct ttt gtt ttg gct tgg ttt gaa     240
    Ile Leu Leu Leu Ala Ala Cys Ile Ser Phe Val Leu Ala Trp Phe Glu
        65                70                75
gaa ggt gaa gaa aca att aca gcc ttt gta gaa cct ttt gta att tta     288

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PH-1064PCT-US seq.TXT

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| 80 85 90 95 | |
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| Leu Ile Leu Val Ala Asn Ala Ile Val Gly Val Trp Gln Glu Arg Asn | |
| 100 105 110 | |
| gct gaa aat gcc atc gaa gcc ctt aag gaa tat gag cct gaa atg ggc | 384 |
| Ala Glu Asn Ala Ile Glu Ala Leu Lys Glu Tyr Glu Pro Glu Met Gly | |
| 115 120 125 | |
| aaa gtg tat cga cag gac aga aag agt gtg cag cgg att aaa gct aaa | 432 |
| Lys Val Tyr Arg Gln Asp Arg Lys Ser Val Gln Arg Ile Lys Ala Lys | |
| 130 135 140 | |
| gac ata gtt cct ggt gat att gta gaa att gct gtt ggt gac aaa gtt | 480 |
| Asp Ile Val Pro Gly Asp Ile Val Glu Ile Ala Val Gly Asp Lys Val | |
| 145 150 155 | |
| cct gct gat ata agg tta act tcc atc aaa tct acc aca cta aga gtt | 528 |
| Pro Ala Asp Ile Arg Leu Thr Ser Ile Lys Ser Thr Thr Leu Arg Val | |
| 160 165 170 175 | |
| gac cag tca att ctc aca ggt gaa tct gtc tct gtc atc aag cac act | 576 |
| Asp Gln Ser Ile Leu Thr Gly Glu Ser Val Ser Val Ile Lys His Thr | |
| 180 185 190 | |
| gat ccc gtc cct gac cca cga gct gtc aac caa gat aaa aag aac atg | 624 |
| Asp Pro Val Pro Asp Pro Arg Ala Val Asn Gln Asp Lys Lys Asn Met | |
| 195 200 205 | |
| ctg ttt tct ggt aca aac att gct gct ggg aaa gct atg gga gtg gtg | 672 |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Leu | Phe | Ser | Gly | Thr | Asn | Ile | Ala | Ala | Gly | Lys | Ala | Met | Gly | Val | Val | |
| | | 210 | | | | | 215 | | | | | | 220 | | | |
| gta | gca | act | gga | gtt | aac | acc | gaa | att | ggc | aag | atc | cgg | gat | gaa | atg | 720 |
| Val | Ala | Thr | Gly | Val | Asn | Thr | Glu | Ile | Gly | Lys | Ile | Arg | Asp | Glu | Met | |
| | | 225 | | | | | 230 | | | | | | 235 | | | |
| gtg | gca | aca | gaa | cag | gag | aga | aca | ccc | ctt | cag | caa | aaa | cta | gat | gaa | 768 |
| Val | Ala | Thr | Glu | Gln | Glu | Arg | Thr | Pro | Leu | Gln | Gln | Lys | Leu | Asp | Glu | |
| 240 | | | | | | | 245 | | | | | | 250 | | 255 | |
| ttt | ggg | gaa | cag | ctt | tcc | aaa | gtc | atc | tcc | ctt | att | tgc | att | gca | gtc | 816 |
| Phe | Gly | Glu | Gln | Leu | Ser | Lys | Val | Ile | Ser | Leu | Ile | Cys | Ile | Ala | Val | |
| | | | | | | | 260 | | | | | | 265 | | 270 | |
| tgg | atc | ata | aat | att | ggg | cac | ttc | aat | gac | ccg | gtt | cat | gga | ggg | tcc | 864 |
| Trp | Ile | Ile | Asn | Ile | Gly | His | Phe | Asn | Asp | Pro | Val | His | Gly | Gly | Ser | |
| | | | | | | | 275 | | | | | | 280 | | 285 | |
| tgg | atc | aga | ggt | gct | att | tac | tac | ttt | aaa | att | gca | gtg | gcc | ctg | gct | 912 |
| Trp | Ile | Arg | Gly | Ala | Ile | Tyr | Tyr | Phe | Lys | Ile | Ala | Val | Ala | Leu | Ala | |
| | | | | | | | 290 | | | | | | 295 | | 300 | |
| gta | gca | gcc | att | cct | gaa | ggt | ctg | cct | gca | gtc | atc | acc | acc | tgc | ctg | 960 |
| Val | Ala | Ala | Ile | Pro | Glu | Gly | Leu | Pro | Ala | Val | Ile | Thr | Thr | Cys | Leu | |
| | | | | | | | 305 | | | | | | 310 | | 315 | |
| gct | ctt | gga | act | cgc | aga | atg | gca | aag | aaa | aat | gcc | att | gtt | cga | agc | 1008 |
| Ala | Leu | Gly | Thr | Arg | Arg | Met | Ala | Lys | Lys | Asn | Ala | Ile | Val | Arg | Ser | |
| 320 | | | | | | | 325 | | | | | | 330 | | 335 | |
| ctc | ccg | tct | gtg | gaa | acc | ctt | ggt | tgt | act | tct | gtt | atc | tgc | tca | gac | 1056 |

PH-1064PCT-US seq.TXT

| | | | |
|---|-------------------------|-----------------|------|
| Leu Pro Ser Val Glu Thr | Leu Gly Cys Thr Ser Val | Ile Cys Ser Asp | |
| 340 | 345 | 350 | |
| aag act ggt aca ctt aca aca aac cag atg tca gtc tgc agg atg ttc | | | 1104 |
| Lys Thr Gly Thr Leu Thr Thr Asn Gln Met Ser Val Cys Arg Met Phe | | | |
| 355 | 360 | 365 | |
| att ctg gac aga gtg gaa ggt gat act tgt tcc ctt aat gag ttt acc | | | 1152 |
| Ile Leu Asp Arg Val Glu Gly Asp Thr Cys Ser Leu Asn Glu Phe Thr | | | |
| 370 | 375 | 380 | |
| ata act gga tca act tat gca cct att gga gaa gtg cat aaa gat gat | | | 1200 |
| Ile Thr Gly Ser Thr Tyr Ala Pro Ile Gly Glu Val His Lys Asp Asp | | | |
| 385 | 390 | 395 | |
| aaa cca gtg aat tgt cac cag tat gat ggt ctg gta gaa tta gca aca | | | 1248 |
| Lys Pro Val Asn Cys His Gln Tyr Asp Gly Leu Val Glu Leu Ala Thr | | | |
| 400 | 405 | 410 | 415 |
| att tgt gct ctt tgt aat gac tct gct ttg gat tac aat gag gca aag | | | 1296 |
| Ile Cys Ala Leu Cys Asn Asp Ser Ala Leu Asp Tyr Asn Glu Ala Lys | | | |
| 420 | 425 | 430 | |
| ggt gtg tat gaa aaa gtt gga gaa gct aca gag act gct ctc act tgc | | | 1344 |
| Gly Val Tyr Glu Lys Val Gly Glu Ala Thr Glu Thr Ala Leu Thr Cys | | | |
| 435 | 440 | 445 | |
| cta gta gag aag atg aat gta ttt gat acc gaa ttg aag ggt ctt tct | | | 1392 |
| Leu Val Glu Lys Met Asn Val Phe Asp Thr Glu Leu Lys Gly Leu Ser | | | |
| 450 | 455 | 460 | |
| aaa ata gaa cgt gca aat gcc tgc aac tca gtc att aaa cag ctg atg | | | 1440 |

PH-1064PCT-US seq.TXT

Lys Ile Glu Arg Ala Asn Ala Cys Asn Ser Val Ile Lys Gln Leu Met
465 470 475
aaa aag gaa ttc act cta gag ttt tca cgt gac aga aag tca atg tcg 1488
Lys Lys Glu Phe Thr Leu Glu Phe Ser Arg Asp Arg Lys Ser Met Ser
480 485 490 495
gtt tac tgt aca cca aat aaa cca agc agg aca tca atg agc aag atg 1536
Val Tyr Cys Thr Pro Asn Lys Pro Ser Arg Thr Ser Met Ser Lys Met
500 505 510
ttt gtg aag ggt gct cct gaa ggt gtc att gac agg tgc acc cac att 1584
Phe Val Lys Gly Ala Pro Glu Gly Val Ile Asp Arg Cys Thr His Ile
515 520 525
cga gtt gga agt act aag gtt cct atg acc tct gga gtc aaa cag aag 1632
Arg Val Gly Ser Thr Lys Val Pro Met Thr Ser Gly Val Lys Gln Lys
530 535 540
atc atg tct gtc att cga gag tgg ggt agt ggc agc gac aca ctg cga 1680
Ile Met Ser Val Ile Arg Glu Trp Gly Ser Gly Ser Asp Thr Leu Arg
545 550 555
tgc ctg gcc ctg gcc act cat gac aac cca ctg aga aga gaa gaa atg 1728
Cys Leu Ala Leu Ala Thr His Asp Asn Pro Leu Arg Arg Glu Glu Met
560 565 570 575
cac ctt gag gac tct gcc aac ttt att aaa tat gag acc aat ctg acc 1776
His Leu Glu Asp Ser Ala Asn Phe Ile Lys Tyr Glu Thr Asn Leu Thr
580 585 590
ttc gtt ggc tgc gtg ggc atg ctg gat cct ccg aga atc gag gtg gcc 1824

PH-1064PCT-US seq.TXT

| | |
|---|------|
| Phe Val Gly Cys Val Gly Met Leu Asp Pro Pro Arg Ile Glu Val Ala | |
| 595 | 600 |
| 605 | |
| tcc tcc gtg aag ctg tgc cgg caa gca ggc atc cgg gtc atc atg atc | 1872 |
| Ser Ser Val Lys Leu Cys Arg Gln Ala Gly Ile Arg Val Ile Met Ile | |
| 610 | 615 |
| 620 | |
| act ggg gac aac aag ggc act gct gtg gcc atc tgt cgc cgc atc ggc | 1920 |
| Thr Gly Asp Asn Lys Gly Thr Ala Val Ala Ile Cys Arg Arg Ile Gly | |
| 625 | 630 |
| 635 | |
| atc ttc ggg cag gat gag gac gtg acg tca aaa gct ttc aca ggc cgg | 1968 |
| Ile Phe Gly Gln Asp Glu Asp Val Thr Ser Lys Ala Phe Thr Gly Arg | |
| 640 | 645 |
| 650 | 655 |
| gag ttt gat gaa ctc aac ccc tcc gcc cag cga gac gcc tgc ctg aac | 2016 |
| Glu Phe Asp Glu Leu Asn Pro Ser Ala Gln Arg Asp Ala Cys Leu Asn | |
| 660 | 665 |
| 670 | |
| gcc cgc tgt ttt gct cga gtt gaa ccc tcc cac aag tct aaa atc gta | 2064 |
| Ala Arg Cys Phe Ala Arg Val Glu Pro Ser His Lys Ser Lys Ile Val | |
| 675 | 680 |
| 685 | |
| gaa ttt ctt cag tct ttt gat gag att aca gct atg act ggc gat ggc | 2112 |
| Glu Phe Leu Gln Ser Phe Asp Glu Ile Thr Ala Met Thr Gly Asp Gly | |
| 690 | 695 |
| 700 | |
| gtg aac gat gct cct gct ctg aag aaa gcc gag att ggc att gct atg | 2160 |
| Val Asn Asp Ala Pro Ala Leu Lys Lys Ala Glu Ile Gly Ile Ala Met | |
| 705 | 710 |
| 715 | |
| ggc tct ggc act gcg gtg gct aaa acc gcc tct gag atg gtc ctg gcg | 2208 |

PH-1064PCT-US seq.TXT

| | |
|---|------|
| Gly Ser Gly Thr Ala Val Ala Lys Thr Ala Ser Glu Met Val Leu Ala | |
| 720 | 725 |
| gat gac aac ttc tcc acc att gtg gct gcc gtt gag gag ggg cgg gca | 2256 |
| Asp Asp Asn Phe Ser Thr Ile Val Ala Ala Val Glu Glu Gly Arg Ala | |
| 740 | 745 |
| atc tac aac aac atg aaa cag ttc atc cgc tac ctc atc tcg tcc aac | 2304 |
| Ile Tyr Asn Asn Met Lys Gln Phe Ile Arg Tyr Leu Ile Ser Ser Asn | |
| 755 | 760 |
| gtc ggg gaa gtt gtc tgt att ttc ctg aca gca gcc ctt gga ttt ccc | 2352 |
| Val Gly Glu Val Val Cys Ile Phe Leu Thr Ala Ala Leu Gly Phe Pro | |
| 770 | 775 |
| gag gct ttg att cct gtt cag ctg ctc tgg gtc aat ctg gtg aca gat | 2400 |
| Glu Ala Leu Ile Pro Val Gln Leu Leu Trp Val Asn Leu Val Thr Asp | |
| 785 | 790 |
| ggc ctg cct gcc act gca ctg ggg ttc aac cct cct gat ctg gac atc | 2448 |
| Gly Leu Pro Ala Thr Ala Leu Gly Phe Asn Pro Pro Asp Leu Asp Ile | |
| 800 | 805 |
| atg aat aaa cct ccc cgg aac cca aag gaa cca ttg atc agc ggg tgg | 2496 |
| Met Asn Lys Pro Pro Arg Asn Pro Lys Glu Pro Leu Ile Ser Gly Trp | |
| 820 | 825 |
| ctc ttt ttc cgt tac ttg gct att ggc tgt tac gtc ggc gct gct acc | 2544 |
| Leu Phe Phe Arg Tyr Leu Ala Ile Gly Cys Tyr Val Gly Ala Ala Thr | |
| 835 | 840 |
| gtg ggt gct gct gca tgg tgg ttc att gct gct gac ggt ggt cca aga | 2592 |

PH-1064PCT-US seq.TXT

| | |
|---|------|
| Val Gly Ala Ala Ala Trp Trp Phe Ile Ala Ala Asp Gly Gly Pro Arg | |
| 850 | 855 |
| 860 | |
| gtg tcc ttc tac cag ctg agt cat ttc cta cag tgt aaa gag gac aac | 2640 |
| Val Ser Phe Tyr Gln Leu Ser His Phe Leu Gln Cys Lys Glu Asp Asn | |
| 865 | 870 |
| 875 | |
| ccg gac ttt gaa ggc gtg gat tgt gca atc ttt gaa tcc cca tac ccg | 2688 |
| Pro Asp Phe Glu Gly Val Asp Cys Ala Ile Phe Glu Ser Pro Tyr Pro | |
| 880 | 885 |
| 890 | 895 |
| atg aca atg gcg ctc tct gtt cta gta act ata gaa atg tgt aac gcc | 2736 |
| Met Thr Met Ala Leu Ser Val Leu Val Thr Ile Glu Met Cys Asn Ala | |
| 900 | 905 |
| 910 | |
| ctc aac agc ttg tcc gaa aac cag tcc ttg ctg agg atg ccc ccc tgg | 2784 |
| Leu Asn Ser Leu Ser Glu Asn Gln Ser Leu Leu Arg Met Pro Pro Trp | |
| 915 | 920 |
| 925 | |
| gag aac atc tgg ctc gtg ggc tcc atc tgc ctg tcc atg tca ctc cac | 2832 |
| Glu Asn Ile Trp Leu Val Gly Ser Ile Cys Leu Ser Met Ser Leu His | |
| 930 | 935 |
| 940 | |
| ttc ctg atc ctc tat gtc gaa ccc ttg cca ctc atc ttc cag atc aca | 2880 |
| Phe Leu Ile Leu Tyr Val Glu Pro Leu Pro Leu Ile Phe Gln Ile Thr | |
| 945 | 950 |
| 955 | |
| ccg ctg aac gtg acc cag tgg ctg atg gtg ctg aaa atc tcc ttg ccc | 2928 |
| Pro Leu Asn Val Thr Gln Trp Leu Met Val Leu Lys Ile Ser Leu Pro | |
| 960 | 965 |
| 970 | 975 |
| gtg att ctc atg gat gag acg ctc aag ttt gtg gcc cgc aac tac ctg | 2976 |

PH-1064PCT-US seq.TXT

Val Ile Leu Met Asp Glu Thr Leu Lys Phe Val Ala Arg Asn Tyr Leu

980

985

990

gaa cct gca ata ctg gag taaccgcttc ctaaaccatt ttgcagaaat 3024

Glu Pro Ala Ile Leu Glu

995

gtaagggtgt tcggttgctg gcatgtgcgt ttttagcaac acatctacca accctgtgca 3084

tgactgatgt tggggaaaaa gaaaagtaaa aaacttccca actcactttg tgttatgtgg 3144

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tacaatttag cttaatcaga aagcctctcc agagaagttt ggtttctttg ctgcaagagg 3264

aatgaggctc tgtaacctta tctaagaact tggaagccgt cagccaagtc gccacatttc 3324

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taaatgtaac ttattttaatg aaatcagaag cagtagacag atgttggtgc aatacaaata 3624

ttgtgatgca tttatcttaa taaaatgcta aatgtcaatt tatcactgcy catgtttgac 3684

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<212> PRT

<213> Homo sapiens

<400> 28

Met Glu Asn Ala His Thr Lys Thr Val Glu Glu Val Leu Gly His Phe

PH-1064PCT-US seq.TXT

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| Gly Val Asn Glu Ser Thr Gly Leu Ser Leu Glu Gln Val Lys Lys Leu | | | |
| 20 | 25 | 30 | |
| Lys Glu Arg Trp Gly Ser Asn Glu Leu Pro Ala Glu Glu Gly Lys Thr | | | |
| 35 | 40 | 45 | |
| Leu Leu Glu Leu Val Ile Glu Gln Phe Glu Asp Leu Leu Val Arg Ile | | | |
| 50 | 55 | 60 | |
| Leu Leu Leu Ala Ala Cys Ile Ser Phe Val Leu Ala Trp Phe Glu Glu | | | |
| 65 | 70 | 75 | 80 |
| Gly Glu Glu Thr Ile Thr Ala Phe Val Glu Pro Phe Val Ile Leu Leu | | | |
| 85 | 90 | 95 | |
| Ile Leu Val Ala Asn Ala Ile Val Gly Val Trp Gln Glu Arg Asn Ala | | | |
| 100 | 105 | 110 | |
| Glu Asn Ala Ile Glu Ala Leu Lys Glu Tyr Glu Pro Glu Met Gly Lys | | | |
| 115 | 120 | 125 | |
| Val Tyr Arg Gln Asp Arg Lys Ser Val Gln Arg Ile Lys Ala Lys Asp | | | |
| 130 | 135 | 140 | |
| Ile Val Pro Gly Asp Ile Val Glu Ile Ala Val Gly Asp Lys Val Pro | | | |
| 145 | 150 | 155 | 160 |
| Ala Asp Ile Arg Leu Thr Ser Ile Lys Ser Thr Thr Leu Arg Val Asp | | | |
| 165 | 170 | 175 | |
| Gln Ser Ile Leu Thr Gly Glu Ser Val Ser Val Ile Lys His Thr Asp | | | |
| 180 | 185 | 190 | |
| Pro Val Pro Asp Pro Arg Ala Val Asn Gln Asp Lys Lys Asn Met Leu | | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 195 | 200 | 205 |
| Phe Ser Gly Thr Asn Ile Ala Ala Gly Lys Ala Met Gly Val Val Val | | |
| 210 | 215 | 220 |
| Ala Thr Gly Val Asn Thr Glu Ile Gly Lys Ile Arg Asp Glu Met Val | | |
| 225 | 230 | 235 |
| Ala Thr Glu Gln Glu Arg Thr Pro Leu Gln Gln Lys Leu Asp Glu Phe | | |
| 245 | 250 | 255 |
| Gly Glu Gln Leu Ser Lys Val Ile Ser Leu Ile Cys Ile Ala Val Trp | | |
| 260 | 265 | 270 |
| Ile Ile Asn Ile Gly His Phe Asn Asp Pro Val His Gly Gly Ser Trp | | |
| 275 | 280 | 285 |
| Ile Arg Gly Ala Ile Tyr Tyr Phe Lys Ile Ala Val Ala Leu Ala Val | | |
| 290 | 295 | 300 |
| Ala Ala Ile Pro Glu Gly Leu Pro Ala Val Ile Thr Thr Cys Leu Ala | | |
| 305 | 310 | 315 |
| Leu Gly Thr Arg Arg Met Ala Lys Lys Asn Ala Ile Val Arg Ser Leu | | |
| 325 | 330 | 335 |
| Pro Ser Val Glu Thr Leu Gly Cys Thr Ser Val Ile Cys Ser Asp Lys | | |
| 340 | 345 | 350 |
| Thr Gly Thr Leu Thr Thr Asn Gln Met Ser Val Cys Arg Met Phe Ile | | |
| 355 | 360 | 365 |
| Leu Asp Arg Val Glu Gly Asp Thr Cys Ser Leu Asn Glu Phe Thr Ile | | |
| 370 | 375 | 380 |
| Thr Gly Ser Thr Tyr Ala Pro Ile Gly Glu Val His Lys Asp Asp Lys | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 385 | | 390 | | 395 | | 400 | | | | | | | | | |
| Pro | Val | Asn | Cys | His | Gln | Tyr | Asp | Gly | Leu | Val | Glu | Leu | Ala | Thr | Ile |
| | | 405 | | | | 410 | | | | | | | | 415 | |
| Cys | Ala | Leu | Cys | Asn | Asp | Ser | Ala | Leu | Asp | Tyr | Asn | Glu | Ala | Lys | Gly |
| | | 420 | | | | | | 425 | | | | | | 430 | |
| Val | Tyr | Glu | Lys | Val | Gly | Glu | Ala | Thr | Glu | Thr | Ala | Leu | Thr | Cys | Leu |
| | | 435 | | | | | | 440 | | | | | | 445 | |
| Val | Glu | Lys | Met | Asn | Val | Phe | Asp | Thr | Glu | Leu | Lys | Gly | Leu | Ser | Lys |
| | | 450 | | | | | | 455 | | | | | | 460 | |
| Ile | Glu | Arg | Ala | Asn | Ala | Cys | Asn | Ser | Val | Ile | Lys | Gln | Leu | Met | Lys |
| 465 | | | | | | 470 | | | | | | | | 475 | 480 |
| Lys | Glu | Phe | Thr | Leu | Glu | Phe | Ser | Arg | Asp | Arg | Lys | Ser | Met | Ser | Val |
| | | | | 485 | | | | | | 490 | | | | | 495 |
| Tyr | Cys | Thr | Pro | Asn | Lys | Pro | Ser | Arg | Thr | Ser | Met | Ser | Lys | Met | Phe |
| | | | 500 | | | | | | | 505 | | | | | 510 |
| Val | Lys | Gly | Ala | Pro | Glu | Gly | Val | Ile | Asp | Arg | Cys | Thr | His | Ile | Arg |
| | | 515 | | | | | | | | 520 | | | | | 525 |
| Val | Gly | Ser | Thr | Lys | Val | Pro | Met | Thr | Ser | Gly | Val | Lys | Gln | Lys | Ile |
| | | 530 | | | | | | | | 535 | | | | | 540 |
| Met | Ser | Val | Ile | Arg | Glu | Trp | Gly | Ser | Gly | Ser | Asp | Thr | Leu | Arg | Cys |
| 545 | | | | | | 550 | | | | | | | | 555 | 560 |
| Leu | Ala | Leu | Ala | Thr | His | Asp | Asn | Pro | Leu | Arg | Arg | Glu | Glu | Met | His |
| | | | | 565 | | | | | | 570 | | | | | 575 |
| Leu | Glu | Asp | Ser | Ala | Asn | Phe | Ile | Lys | Tyr | Glu | Thr | Asn | Leu | Thr | Phe |

PH-1064PCT-US seq.TXT

| | | |
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| 580 | 585 | 590 |
| Val Gly Cys Val Gly Met Leu Asp Pro Pro Arg Ile Glu Val Ala Ser | | |
| 595 | 600 | 605 |
| Ser Val Lys Leu Cys Arg Gln Ala Gly Ile Arg Val Ile Met Ile Thr | | |
| 610 | 615 | 620 |
| Gly Asp Asn Lys Gly Thr Ala Val Ala Ile Cys Arg Arg Ile Gly Ile | | |
| 625 | 630 | 635 |
| | | 640 |
| Phe Gly Gln Asp Glu Asp Val Thr Ser Lys Ala Phe Thr Gly Arg Glu | | |
| 645 | 650 | 655 |
| Phe Asp Glu Leu Asn Pro Ser Ala Gln Arg Asp Ala Cys Leu Asn Ala | | |
| 660 | 665 | 670 |
| Arg Cys Phe Ala Arg Val Glu Pro Ser His Lys Ser Lys Ile Val Glu | | |
| 675 | 680 | 685 |
| Phe Leu Gln Ser Phe Asp Glu Ile Thr Ala Met Thr Gly Asp Gly Val | | |
| 690 | 695 | 700 |
| Asn Asp Ala Pro Ala Leu Lys Lys Ala Glu Ile Gly Ile Ala Met Gly | | |
| 705 | 710 | 715 |
| | | 720 |
| Ser Gly Thr Ala Val Ala Lys Thr Ala Ser Glu Met Val Leu Ala Asp | | |
| 725 | 730 | 735 |
| Asp Asn Phe Ser Thr Ile Val Ala Ala Val Glu Glu Gly Arg Ala Ile | | |
| 740 | 745 | 750 |
| Tyr Asn Asn Met Lys Gln Phe Ile Arg Tyr Leu Ile Ser Ser Asn Val | | |
| 755 | 760 | 765 |
| Gly Glu Val Val Cys Ile Phe Leu Thr Ala Ala Leu Gly Phe Pro Glu | | |

PH-1064PCT-US seq.TXT

| | | | | | |
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| Ala | Leu | Ile | Pro | Val | Gln |
| | Leu | Leu | Trp | Val | Asn |
| | | | | Leu | Val |
| | | | | Thr | Asp |
| | | | | Gly | |
| 785 | 790 | 795 | 800 | | |
| Leu | Pro | Ala | Thr | Ala | Leu |
| | | | | Gly | Phe |
| | | | | Asn | Pro |
| | | | | Pro | Asp |
| | | | | Leu | Asp |
| | | | | Ile | Met |
| | 805 | 810 | 815 | | |
| Asn | Lys | Pro | Pro | Arg | Asn |
| | | | | Pro | Lys |
| | | | | Glu | Pro |
| | | | | Leu | Ile |
| | | | | Ser | Gly |
| | | | | Trp | Leu |
| | 820 | 825 | 830 | | |
| Phe | Phe | Arg | Tyr | Leu | Ala |
| | | | | Ile | Gly |
| | | | | Cys | Tyr |
| | | | | Val | Gly |
| | | | | Ala | Ala |
| | | | | Thr | Val |
| | 835 | 840 | 845 | | |
| Gly | Ala | Ala | Ala | Trp | Trp |
| | | | | Phe | Ile |
| | | | | Ala | Ala |
| | | | | Asp | Gly |
| | | | | Gly | Gly |
| | | | | Pro | Arg |
| | | | | Val | |
| | 850 | 855 | 860 | | |
| Ser | Phe | Tyr | Gln | Leu | Ser |
| | | | | His | Phe |
| | | | | Leu | Gln |
| | | | | Cys | Lys |
| | | | | Glu | Asp |
| | | | | Asn | Pro |
| 865 | 870 | 875 | 880 | | |
| Asp | Phe | Glu | Gly | Val | Asp |
| | | | | Cys | Ala |
| | | | | Ile | Phe |
| | | | | Glu | Ser |
| | | | | Pro | Tyr |
| | | | | Pro | Met |
| | 885 | 890 | 895 | | |
| Thr | Met | Ala | Leu | Ser | Val |
| | | | | Leu | Val |
| | | | | Thr | Ile |
| | | | | Glu | Met |
| | | | | Cys | Asn |
| | | | | Ala | Leu |
| | 900 | 905 | 910 | | |
| Asn | Ser | Leu | Ser | Glu | Asn |
| | | | | Gln | Ser |
| | | | | Leu | Leu |
| | | | | Arg | Met |
| | | | | Pro | Pro |
| | | | | Trp | Glu |
| | 915 | 920 | 925 | | |
| Asn | Ile | Trp | Leu | Val | Gly |
| | | | | Ser | Ile |
| | | | | Cys | Leu |
| | | | | Ser | Met |
| | | | | Ser | Leu |
| | | | | His | Phe |
| | 930 | 935 | 940 | | |
| Leu | Ile | Leu | Tyr | Val | Glu |
| | | | | Pro | Leu |
| | | | | Pro | Leu |
| | | | | Ile | Phe |
| | | | | Gln | Ile |
| | | | | Thr | Pro |
| 945 | 950 | 955 | 960 | | |
| Leu | Asn | Val | Thr | Gln | Trp |
| | | | | Leu | Met |
| | | | | Val | Leu |
| | | | | Lys | Ile |
| | | | | Ser | Leu |
| | | | | Pro | Val |

PH-1064PCT-US seq.TXT

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 ggctcctgac ca atg ggg aag tgg cat gtg gga ggg cgc cgg ggt tcc ccc 171

Met Gly Lys Trp His Val Gly Gly Arg Arg Gly Ser Pro

1 5 10

cgc caa tgg gga gct acg gcg cgc ggc cgg gac ttg gag gcg gtg cgg 219
 Arg Gln Trp Gly Ala Thr Ala Arg Gly Arg Asp Leu Glu Ala Val Arg

15 20 25

cgc ggc ggg tgc ggt tca gtc ggt cgg cgg cgg cag cgg agg agg agg 267
 Arg Gly Gly Cys Gly Ser Val Gly Arg Arg Arg Gln Arg Arg Arg Arg

PH-1064PCT-US seq.TXT

| | | | | |
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| Arg Arg Arg Arg Met Arg Arg Met Arg Arg Met Trp Ala Thr Gln Gly | | | | |
| 50 | 55 | 60 | | |
| ctg gcg gtg cgc gtg gct ctg agc gtg ctg ccg ggc agc cgg gcg ctg | 363 | | | |
| Leu Ala Val Arg Val Ala Leu Ser Val Leu Pro Gly Ser Arg Ala Leu | | | | |
| 65 | 70 | 75 | | |
| cgg ccg ggc gac tgc gaa gtt tgt att tct tat ctg gga aga ttt tac | 411 | | | |
| Arg Pro Gly Asp Cys Glu Val Cys Ile Ser Tyr Leu Gly Arg Phe Tyr | | | | |
| 80 | 85 | 90 | | |
| cag gac ctc aaa gac aga gat gtc aca ttc tca cca gcc act att gaa | 459 | | | |
| Gln Asp Leu Lys Asp Arg Asp Val Thr Phe Ser Pro Ala Thr Ile Glu | | | | |
| 95 | 100 | 105 | | |
| aac gaa ctt ata aag ttc tgc cgg gaa gca aga ggc aaa gag aat cgg | 507 | | | |
| Asn Glu Leu Ile Lys Phe Cys Arg Glu Ala Arg Gly Lys Glu Asn Arg | | | | |
| 110 | 115 | 120 | 125 | |
| ttg tgc tac tat atc ggg gcc aca gat gat gca gcc acc aaa atc atc | 555 | | | |
| Leu Cys Tyr Tyr Ile Gly Ala Thr Asp Asp Ala Ala Thr Lys Ile Ile | | | | |
| 130 | 135 | 140 | | |
| aat gag gta tca aag cct ctg gcc cac cac atc cct gtg gag aag atc | 603 | | | |
| Asn Glu Val Ser Lys Pro Leu Ala His His Ile Pro Val Glu Lys Ile | | | | |
| 145 | 150 | 155 | | |
| tgt gag aag ctt aag aag aag gac agc cag ata tgt gag ctt aag tat | 651 | | | |
| Cys Glu Lys Leu Lys Lys Lys Asp Ser Gln Ile Cys Glu Leu Lys Tyr | | | | |

PH-1064PCT-US seq.TXT

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160                               165                               170
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175                               180                               185
aaa gag ctg aag aag att ctg gat gac tgg ggg gag aca tgc aaa ggc      747
Lys Glu Leu Lys Lys Ile Leu Asp Asp Trp Gly Glu Thr Cys Lys Gly
190                               195                               200                               205
tgt gca gaa aag tct gac tac atc cgg aag ata aat gaa ctg atg cct      795
Cys Ala Glu Lys Ser Asp Tyr Ile Arg Lys Ile Asn Glu Leu Met Pro
210                               215                               220
aaa tat gcc ccc aag gca gcc agt gca ccg acc gat ttg tagtctgctc      844
Lys Tyr Ala Pro Lys Ala Ala Ser Ala Pro Thr Asp Leu
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<212> PRT

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<400> 30

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| 1 | 5 | 10 | 15 | | | | | | | | | | | | |
| Gly | Ala | Thr | Ala | Arg | Gly | Arg | Asp | Leu | Glu | Ala | Val | Arg | Arg | Gly | Gly |
| | 20 | | 25 | | 30 | | | | | | | | | | |
| Cys | Gly | Ser | Val | Gly | Arg | Arg | Arg | Gln | Arg | Arg | Arg | Arg | Arg | Arg | Arg |
| | 35 | | 40 | | 45 | | | | | | | | | | |
| Arg | Met | Arg | Arg | Met | Arg | Arg | Met | Trp | Ala | Thr | Gln | Gly | Leu | Ala | Val |
| | 50 | | 55 | | 60 | | | | | | | | | | |
| Arg | Val | Ala | Leu | Ser | Val | Leu | Pro | Gly | Ser | Arg | Ala | Leu | Arg | Pro | Gly |
| | 65 | | 70 | | 75 | | | | | | | | | | 80 |
| Asp | Cys | Glu | Val | Cys | Ile | Ser | Tyr | Leu | Gly | Arg | Phe | Tyr | Gln | Asp | Leu |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Lys | Asp | Arg | Asp | Val | Thr | Phe | Ser | Pro | Ala | Thr | Ile | Glu | Asn | Glu | Leu |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Ile | Lys | Phe | Cys | Arg | Glu | Ala | Arg | Gly | Lys | Glu | Asn | Arg | Leu | Cys | Tyr |
| | | 115 | | | | | | 120 | | | | | 125 | | |
| Tyr | Ile | Gly | Ala | Thr | Asp | Asp | Ala | Ala | Thr | Lys | Ile | Ile | Asn | Glu | Val |
| | 130 | | | | 135 | | | | | 140 | | | | | |
| Ser | Lys | Pro | Leu | Ala | His | His | Ile | Pro | Val | Glu | Lys | Ile | Cys | Glu | Lys |
| | 145 | | | | 150 | | | | | 155 | | | | 160 | |
| Leu | Lys | Lys | Lys | Asp | Ser | Gln | Ile | Cys | Glu | Leu | Lys | Tyr | Asp | Lys | Gln |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Ile | Asp | Leu | Ser | Thr | Val | Asp | Leu | Lys | Lys | Leu | Arg | Val | Lys | Glu | Leu |
| | | 180 | | | | | | | 185 | | | | | 190 | |
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Met Glu Ser Glu Thr Glu Pro
1                5
gag ccc gtc acg ctc ctg gtg aag agc ccc aac cag cgc cac cgc gac 162
Glu Pro Val Thr Leu Leu Val Lys Ser Pro Asn Gln Arg His Arg Asp
10                15                20
ttg gag ctg agt ggc gac cgc ggc tgg agt gtg ggc cac ctc aag gcc 210
Leu Glu Leu Ser Gly Asp Arg Gly Trp Ser Val Gly His Leu Lys Ala
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| tta att tat tct ggg aag ctg ttg ttg gat cac caa tgt ctc agg gac | 306 |
| Leu Ile Tyr Ser Gly Lys Leu Leu Leu Asp His Gln Cys Leu Arg Asp | |
| 60 65 70 | |
| ttg ctt cca aag cag gaa aaa cgg cat gtt ttg cat ctg gtg tgc aat | 354 |
| Leu Leu Pro Lys Gln Glu Lys Arg His Val Leu His Leu Val Cys Asn | |
| 75 80 85 | |
| gtg aag agt cct tca aaa atg cca gaa atc aac gcc aag gtg gct gaa | 402 |
| Val Lys Ser Pro Ser Lys Met Pro Glu Ile Asn Ala Lys Val Ala Glu | |
| 90 95 100 | |
| tcc aca gag gag cct gct ggt tct aat cgg gga cag tat cct gag gat | 450 |
| Ser Thr Glu Glu Pro Ala Gly Ser Asn Arg Gly Gln Tyr Pro Glu Asp | |
| 105 110 115 | |
| tcc tca agt gat ggt tta agg caa agg gaa gtt ctt cgg aac ctt tct | 498 |
| Ser Ser Ser Asp Gly Leu Arg Gln Arg Glu Val Leu Arg Asn Leu Ser | |
| 120 125 130 135 | |
| tcc cct gga tgg gaa aac atc tca agg cct gaa gct gcc cag cag gca | 546 |
| Ser Pro Gly Trp Glu Asn Ile Ser Arg Pro Glu Ala Ala Gln Gln Ala | |
| 140 145 150 | |
| ttc caa ggc ctg ggt cct ggt ttc tcc ggt tac aca ccc tat ggg tgg | 594 |
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| 155 160 165 | |

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| caa tat tta gca gcc act gct gca tca ggg gct ttt gtt cca cca cca | 690 |
| Gln Tyr Leu Ala Ala Thr Ala Ala Ser Gly Ala Phe Val Pro Pro Pro | |
| 185 190 195 | |
| agt gca caa gag ata cct gtg gtc tct gca cct gct cca gcc cct att | 738 |
| Ser Ala Gln Glu Ile Pro Val Val Ser Ala Pro Ala Pro Ala Pro Ile | |
| 200 205 210 215 | |
| cac aac cag ttt cca gct gaa aac cag cct gcc aat cag aat gct gct | 786 |
| His Asn Gln Phe Pro Ala Glu Asn Gln Pro Ala Asn Gln Asn Ala Ala | |
| 220 225 230 | |
| cct caa gtg gtt gtt aat cct gga gcc aat caa aat ttg cgg atg aat | 834 |
| Pro Gln Val Val Val Asn Pro Gly Ala Asn Gln Asn Leu Arg Met Asn | |
| 235 240 245 | |
| gca caa ggt ggc cct att gtg gaa gaa gat gat gaa ata aat cga gat | 882 |
| Ala Gln Gly Gly Pro Ile Val Glu Glu Asp Asp Glu Ile Asn Arg Asp | |
| 250 255 260 | |
| tgg ttg gat tgg acc tat tca gca gct aca ttt tct gtt ttt ctc agt | 930 |
| Trp Leu Asp Trp Thr Tyr Ser Ala Ala Thr Phe Ser Val Phe Leu Ser | |
| 265 270 275 | |
| atc ctc tac ttc tac tcc tcc ctg agc aga ttc ctc atg gtc atg ggg | 978 |
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Pro Arg Pro Val Gln Asn Phe Pro Asn Asp Gly Pro Pro Pro Asp Val
315 320 325

gta aat cag gac ccc aac aat aac tta cag gaa ggc act gat cct gaa 1122
Val Asn Gln Asp Pro Asn Asn Asn Leu Gln Glu Gly Thr Asp Pro Glu
330 335 340

act gaa gac ccc aac cac ctc cct cca gac agg gat gta cta gat ggc 1170
Thr Glu Asp Pro Asn His Leu Pro Pro Asp Arg Asp Val Leu Asp Gly
345 350 355

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Glu Gln Thr Ser Pro Ser Phe Met Ser Thr Ala Trp Leu Val Phe Lys
360 365 370 375

act ttc ttt gcc tct ctt ctt cca gaa ggc ccc cca gcc atc gca aac 1266
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380 385 390

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<212> PRT

<213> Homo sapiens

<400> 32

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| | | | | 20 | | | | | 25 | | | | | 30 | |
| Ser | Val | Gly | His | Leu | Lys | Ala | His | Leu | Ser | Arg | Val | Tyr | Pro | Glu | Arg |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Pro | Arg | Pro | Glu | Asp | Gln | Arg | Leu | Ile | Tyr | Ser | Gly | Lys | Leu | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Asp | His | Gln | Cys | Leu | Arg | Asp | Leu | Leu | Pro | Lys | Gln | Glu | Lys | Arg | His |
| | | | | 65 | | | | | 70 | | | | | 75 | |
| Val | Leu | His | Leu | Val | Cys | Asn | Val | Lys | Ser | Pro | Ser | Lys | Met | Pro | Glu |
| | | | | 85 | | | | | 90 | | | | | 95 | |
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| | | | | 100 | | | | | 105 | | | | | 110 | |
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| Gly Tyr Thr Pro Tyr Gly Trp Leu Gln Leu Ser Trp Phe Gln Gln Ile | | |
| 165 | 170 | 175 |
| Tyr Ala Arg Gln Tyr Tyr Met Gln Tyr Leu Ala Ala Thr Ala Ala Ser | | |
| 180 | 185 | 190 |
| Gly Ala Phe Val Pro Pro Pro Ser Ala Gln Glu Ile Pro Val Val Ser | | |
| 195 | 200 | 205 |
| Ala Pro Ala Pro Ala Pro Ile His Asn Gln Phe Pro Ala Glu Asn Gln | | |
| 210 | 215 | 220 |
| Pro Ala Asn Gln Asn Ala Ala Pro Gln Val Val Val Asn Pro Gly Ala | | |
| 225 | 230 | 235 |
| Asn Gln Asn Leu Arg Met Asn Ala Gln Gly Gly Pro Ile Val Glu Glu | | |
| 245 | 250 | 255 |
| Asp Asp Glu Ile Asn Arg Asp Trp Leu Asp Trp Thr Tyr Ser Ala Ala | | |
| 260 | 265 | 270 |
| Thr Phe Ser Val Phe Leu Ser Ile Leu Tyr Phe Tyr Ser Ser Leu Ser | | |
| 275 | 280 | 285 |
| Arg Phe Leu Met Val Met Gly Ala Thr Val Val Met Tyr Leu His His | | |
| 290 | 295 | 300 |
| Val Gly Trp Phe Pro Phe Arg Pro Arg Pro Val Gln Asn Phe Pro Asn | | |

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| | | 325 | | 330 | | 335 |
| Gln Glu Gly Thr Asp Pro Glu Thr Glu Asp Pro Asn His Leu Pro Pro | | | | | | |
| | | 340 | | 345 | | 350 |
| Asp Arg Asp Val Leu Asp Gly Glu Gln Thr Ser Pro Ser Phe Met Ser | | | | | | |
| | | 355 | | 360 | | 365 |
| Thr Ala Trp Leu Val Phe Lys Thr Phe Phe Ala Ser Leu Leu Pro Glu | | | | | | |
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10

15

20

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55

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105

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 Gln Lys Lys Ala Glu Ala Thr Gly Glu Lys Arg Pro Arg Gly Arg Pro

PH-1064PCT-US seq.TXT

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Met Glu His Gln Leu Leu Cys Cys Glu

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Val Glu Thr Ile Arg Arg Ala Tyr Pro Asp Ala Asn Leu Leu Asn Asp

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| Lys Ile Val Ala Thr Trp Met Leu Glu Val Cys Glu Glu Gln Lys Cys | | | |
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| Glu Glu Glu Val Phe Pro Leu Ala Met Asn Tyr Leu Asp Arg Phe Leu | | | |
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| Cys Met Phe Val Ala Ser Lys Met Lys Glu Thr Ile Pro Leu Thr Ala | | | |
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| Glu Lys Leu Cys Ile Tyr Thr Asp Asn Ser Ile Arg Pro Glu Glu Leu | | | |
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| Leu Gln Met Glu Leu Leu Leu Val Asn Lys Leu Lys Trp Asn Leu Ala | | | |
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Ser Arg Val Ile Lys Cys Asp Pro Asp Cys Leu Arg Ala Cys Gln Glu
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| | | | 180 | | | | | | 185 | | | | | | 190 | |
| Val | Lys | Phe | Ile | Ser | Asn | Pro | Pro | Ser | Met | Val | Ala | Ala | Gly | Ser | Val | |
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| Val | Ala | Ala | Val | Gln | Gly | Leu | Asn | Leu | Arg | Ser | Pro | Asn | Asn | Phe | Leu | |
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Lys Ala Gly Glu Pro Lys Arg Arg Ser Arg Ser Asn Ile Ser Gly Trp
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| Phe Ile Ser Val Thr Val Gln Ser Ser Thr Glu Ser Ala Gln Asp Thr | |
| 575 580 585 | |
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| Val Thr Arg Gly Gly Val Ala Pro Ala Pro Glu Ala Pro Glu Pro Pro | |
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| gga ccc aaa gcg atc gat gtg atg gca ccc tcc tca gaa agc agc gtc | 2535 |
| Gly Pro Lys Ala Ile Asp Val Met Ala Pro Ser Ser Glu Ser Ser Val | |
| 685 690 695 700 | |
| ccc tct cac agt atg tcc tcc cga cgg gac aca gac tcg gat acc cag | 2583 |
| Pro Ser His Ser Met Ser Ser Arg Arg Asp Thr Asp Ser Asp Thr Gln | |
| 705 710 715 | |
| gat gcc aat gac tca agc tgt aag tca tct gag agg agc ctc ccg gac | 2631 |
| Asp Ala Asn Asp Ser Ser Cys Lys Ser Ser Glu Arg Ser Leu Pro Asp | |
| 720 725 730 | |
| tgt acc cct cac ccc aac tcc atc agc atc gat gcc ggt ccc cgg cag | 2679 |
| Cys Thr Pro His Pro Asn Ser Ile Ser Ile Asp Ala Gly Pro Arg Gln | |
| 735 740 745 | |
| gcc ccc aag att gcc cag atc aag cgc aac ctc tcc tat gga gac aac | 2727 |
| Ala Pro Lys Ile Ala Gln Ile Lys Arg Asn Leu Ser Tyr Gly Asp Asn | |
| 750 755 760 | |
| agc gac cct gcc cta gag gcg tcc tcg ctg ccc cca ccc gac ccc tgg | 2775 |
| Ser Asp Pro Ala Leu Glu Ala Ser Ser Leu Pro Pro Pro Asp Pro Trp | |
| 765 770 775 780 | |
| ctc gag acc tcc tcc agc tcc cca gca gag ccg gca cag cca ggg gcc | 2823 |
| Leu Glu Thr Ser Ser Ser Ser Pro Ala Glu Pro Ala Gln Pro Gly Ala | |
| 785 790 795 | |

PH-1064PCT-US seq.TXT

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| tgc cgc cga gac ggc tac tgg ttc cta aag cta ctg cag gca gaa aca | 2871 |
| Cys Arg Arg Asp Gly Tyr Trp Phe Leu Lys Leu Leu Gln Ala Glu Thr | |
| 800 805 810 | |
| gag cgg ctg gaa ggc tgg tgc tgc cag atg gac aag gag acc aaa gag | 2919 |
| Glu Arg Leu Glu Gly Trp Cys Cys Gln Met Asp Lys Glu Thr Lys Glu | |
| 815 820 825 | |
| aac aac ctc tct gaa gaa gtc tta gga aaa gtc ctc agt gct gtg ggc | 2967 |
| Asn Asn Leu Ser Glu Glu Val Leu Gly Lys Val Leu Ser Ala Val Gly | |
| 830 835 840 | |
| agt gcc cag cta ctg atg tcc cag aaa ttc cag cag ttc cgg ggc ctc | 3015 |
| Ser Ala Gln Leu Leu Met Ser Gln Lys Phe Gln Gln Phe Arg Gly Leu | |
| 845 850 855 860 | |
| tgt gag caa aac ttg aac cct gat gcc aac cca cgc ccc aca gcc cag | 3063 |
| Cys Glu Gln Asn Leu Asn Pro Asp Ala Asn Pro Arg Pro Thr Ala Gln | |
| 865 870 875 | |
| gac ctg gca ggg ttc tgg gac ctg cta cag ctg tcc atc gag gat atc | 3111 |
| Asp Leu Ala Gly Phe Trp Asp Leu Leu Gln Leu Ser Ile Glu Asp Ile | |
| 880 885 890 | |
| agc atg aag ttc gat gaa ctc tac cac ctc aag gcc aac agc tgg cag | 3159 |
| Ser Met Lys Phe Asp Glu Leu Tyr His Leu Lys Ala Asn Ser Trp Gln | |
| 895 900 905 | |
| ctg gtg gag acc ccc gag aag agg aag gaa gag aag aaa cca ccc cct | 3207 |
| Leu Val Glu Thr Pro Glu Lys Arg Lys Glu Glu Lys Lys Pro Pro Pro | |
| 910 915 920 | |

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ccg gtc cca aag aag cca gcc aaa tcc aag ccg gca gtg agc cgc gac 3255
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aag gcc tca gac gcc agc gac aag cag cgc cag gag gcc cgc aag aga 3303
Lys Ala Ser Asp Ala Ser Asp Lys Gln Arg Gln Glu Ala Arg Lys Arg
945 950 955
ctc ctg gcg gcc aag cgg gca gct tct gtg cgg cag aac tca gcc acc 3351
Leu Leu Ala Ala Lys Arg Ala Ala Ser Val Arg Gln Asn Ser Ala Thr
960 965 970
gag agc gca gac agc atc gag att tat gtc ccg gag gcc cag acc agg 3399
Glu Ser Ala Asp Ser Ile Glu Ile Tyr Val Pro Glu Ala Gln Thr Arg
975 980 985
ctc tgagaccatg caggaggaaa gaaacgattt taaatcatta aaaacacaaa 3452
Leu
aactaagtgc gaacggaaca gagttttctc aacctttgct atggttattc tgtctagaga 3512
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<212> PRT

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<400> 38

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| 50 | 55 | 60 |
| Pro Pro Pro Ser Ser Thr Phe Pro Arg Ile His Tyr Asn Ser His Phe | | |
| 65 | 70 | 75 |
| Glu Val Pro Glu Glu Ser Pro Phe Pro Ser His Ala Gln Ala Thr Lys | | |
| 85 | 90 | 95 |
| Ile Asn Arg Leu Pro Ala Asn Leu Leu Asp Gln Phe Glu Lys Gln Leu | | |
| 100 | 105 | 110 |
| Pro Ile His Arg Asp Gly Phe Ser Thr Leu Gln Phe Pro Arg Gly Glu | | |
| 115 | 120 | 125 |
| Ala Lys Ala Arg Gly Glu Ser Pro Gly Arg Ile Arg His Leu Val His | | |
| 130 | 135 | 140 |
| Ser Val Gln Arg Leu Phe Phe Thr Lys Ala Pro Ser Leu Glu Gly Thr | | |
| 145 | 150 | 155 |
| Ala Gly Lys Val Gly Gly Asn Gly Ser Lys Lys Gly Gly Met Glu Asp | | |
| 165 | 170 | 175 |
| Gly Lys Gly Arg Arg Ala Lys Ser Lys Glu Arg Ala Lys Ala Gly Glu | | |
| 180 | 185 | 190 |
| Pro Lys Arg Arg Ser Arg Ser Asn Ile Ser Gly Trp Trp Ser Ser Asp | | |
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| Asp Asn Leu Asp Gly Glu Ala Gly Ala Phe Arg Ser Ser Gly Pro Ala | | |

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| 225 | 230 | 235 240 |
| Tyr Phe Met His Ala Tyr Asn Thr Ile Ser Gly His Met Leu Lys Thr | | |
| 245 | 250 | 255 |
| Thr Lys Asn Asn Thr Thr Glu Leu Thr Ala Pro Pro Pro Pro Pro Ala | | |
| 260 | 265 | 270 |
| Pro Pro Ala Thr Cys Pro Ser Leu Gly Val Gly Thr Asp Thr Asn Tyr | | |
| 275 | 280 | 285 |
| Val Lys Arg Gly Ser Trp Ser Thr Leu Thr Leu Ser His Ala His Glu | | |
| 290 | 295 | 300 |
| Val Cys Gln Lys Thr Ser Ala Thr Leu Asp Lys Ser Leu Leu Lys Ser | | |
| 305 | 310 | 315 320 |
| Lys Ser Cys His Gln Gly Leu Ala Tyr His Tyr Leu Gln Val Pro Gly | | |
| 325 | 330 | 335 |
| Gly Gly Gly Glu Trp Ser Thr Thr Leu Leu Ser Pro Arg Glu Thr Asp | | |
| 340 | 345 | 350 |
| Ala Ala Ala Glu Gly Pro Ile Pro Cys Arg Arg Met Arg Ser Gly Ser | | |
| 355 | 360 | 365 |
| Tyr Ile Lys Ala Met Gly Asp Glu Asp Ser Asp Glu Ser Gly Gly Ser | | |
| 370 | 375 | 380 |
| Pro Lys Pro Ser Pro Lys Thr Ala Ala Arg Arg Gln Ser Tyr Leu Arg | | |
| 385 | 390 | 395 400 |
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| 420 | 425 | 430 |
| Trp Glu Glu Asp Tyr Thr Pro Val Ser Asp Ser Leu Asn Asp Ser Ser | | |
| 435 | 440 | 445 |
| Cys Ile Ser Gln Ile Phe Gly Gln Ala Ser Leu Ile Pro Gln Leu Phe | | |
| 450 | 455 | 460 |
| Gly His Glu Gln Gln Val Arg Glu Ala Glu Leu Ser Asp Gln Tyr Glu | | |
| 465 | 470 | 475 |
| Ala Ala Cys Glu Ser Ala Cys Ser Glu Ala Glu Ser Thr Ala Ala Glu | | |
| 485 | 490 | 495 |
| Thr Leu Asp Leu Pro Leu Pro Ser Tyr Phe Arg Ser Arg Ser His Ser | | |
| 500 | 505 | 510 |
| Tyr Leu Arg Ala Ile Gln Ala Gly Cys Ser Gln Glu Glu Asp Ser Val | | |
| 515 | 520 | 525 |
| Ser Leu Gln Ser Leu Ser Pro Pro Pro Ser Thr Gly Ser Leu Ser Asn | | |
| 530 | 535 | 540 |
| Ser Arg Thr Leu Pro Ser Ser Ser Cys Leu Val Ala Tyr Lys Lys Thr | | |
| 545 | 550 | 555 |
| Pro Pro Pro Val Pro Pro Arg Thr Thr Ser Lys Pro Phe Ile Ser Val | | |
| 565 | 570 | 575 |
| Thr Val Gln Ser Ser Thr Glu Ser Ala Gln Asp Thr Tyr Leu Asp Ser | | |
| 580 | 585 | 590 |
| Gln Asp His Lys Ser Glu Val Thr Ser Gln Ser Gly Leu Ser Asn Ser | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 595 | 600 | 605 |
| Ser Asp Ser Leu Asp Ser Ser Thr Arg Pro Pro Ser Val Thr Arg Gly | | |
| 610 | 615 | 620 |
| Gly Val Ala Pro Ala Pro Glu Ala Pro Glu Pro Pro Pro Lys His Ala | | |
| 625 | 630 | 635 |
| Ala Leu Lys Ser Glu Gln Gly Thr Leu Thr Ser Ser Glu Ser His Pro | | 640 |
| 645 | 650 | 655 |
| Glu Ala Ala Pro Lys Arg Lys Leu Ser Ser Ile Gly Ile Gln Glu Arg | | |
| 660 | 665 | 670 |
| Thr Arg Arg Asn Gly Ser His Leu Ser Glu Asp Asn Gly Pro Lys Ala | | |
| 675 | 680 | 685 |
| Ile Asp Val Met Ala Pro Ser Ser Glu Ser Ser Val Pro Ser His Ser | | |
| 690 | 695 | 700 |
| Met Ser Ser Arg Arg Asp Thr Asp Ser Asp Thr Gln Asp Ala Asn Asp | | |
| 705 | 710 | 715 |
| Ser Ser Cys Lys Ser Ser Glu Arg Ser Leu Pro Asp Cys Thr Pro His | | 720 |
| 725 | 730 | 735 |
| Pro Asn Ser Ile Ser Ile Asp Ala Gly Pro Arg Gln Ala Pro Lys Ile | | |
| 740 | 745 | 750 |
| Ala Gln Ile Lys Arg Asn Leu Ser Tyr Gly Asp Asn Ser Asp Pro Ala | | |
| 755 | 760 | 765 |
| Leu Glu Ala Ser Ser Leu Pro Pro Pro Asp Pro Trp Leu Glu Thr Ser | | |
| 770 | 775 | 780 |
| Ser Ser Ser Pro Ala Glu Pro Ala Gln Pro Gly Ala Cys Arg Arg Asp | | |

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| Gly Tyr Trp Phe Leu Lys Leu Leu Gln Ala Glu Thr Glu Arg Leu Glu | | | | | | |
| | 805 | | 810 | | 815 | |
| Gly Trp Cys Cys Gln Met Asp Lys Glu Thr Lys Glu Asn Asn Leu Ser | | | | | | |
| | 820 | | 825 | | 830 | |
| Glu Glu Val Leu Gly Lys Val Leu Ser Ala Val Gly Ser Ala Gln Leu | | | | | | |
| | 835 | | 840 | | 845 | |
| Leu Met Ser Gln Lys Phe Gln Gln Phe Arg Gly Leu Cys Glu Gln Asn | | | | | | |
| | 850 | | 855 | | 860 | |
| Leu Asn Pro Asp Ala Asn Pro Arg Pro Thr Ala Gln Asp Leu Ala Gly | | | | | | |
| 865 | | 870 | | 875 | | 880 |
| Phe Trp Asp Leu Leu Gln Leu Ser Ile Glu Asp Ile Ser Met Lys Phe | | | | | | |
| | 885 | | 890 | | 895 | |
| Asp Glu Leu Tyr His Leu Lys Ala Asn Ser Trp Gln Leu Val Glu Thr | | | | | | |
| | 900 | | 905 | | 910 | |
| Pro Glu Lys Arg Lys Glu Glu Lys Lys Pro Pro Pro Pro Val Pro Lys | | | | | | |
| | 915 | | 920 | | 925 | |
| Lys Pro Ala Lys Ser Lys Pro Ala Val Ser Arg Asp Lys Ala Ser Asp | | | | | | |
| | 930 | | 935 | | 940 | |
| Ala Ser Asp Lys Gln Arg Gln Glu Ala Arg Lys Arg Leu Leu Ala Ala | | | | | | |
| 945 | | 950 | | 955 | | 960 |
| Lys Arg Ala Ala Ser Val Arg Gln Asn Ser Ala Thr Glu Ser Ala Asp | | | | | | |
| | 965 | | 970 | | 975 | |
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PH-1064PCT-US seq.TXT

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<222> (1)..(1545)

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cgg ggc cag gtg gcc aag ctt gag gca gcc cta ggt gag gcc aag aag 96

Arg Gly Gln Val Ala Lys Leu Glu Ala Ala Leu Gly Glu Ala Lys Lys

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25

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caa ctt cag gat gag atg ctg cgg cgg gtg gat gct gag aac agg ctg 144

Gln Leu Gln Asp Glu Met Leu Arg Arg Val Asp Ala Glu Asn Arg Leu

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40

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cag acc atg aag gag gaa ctg gac ttc cag aag aac atc tac agt gag 192

Gln Thr Met Lys Glu Glu Leu Asp Phe Gln Lys Asn Ile Tyr Ser Glu

50

55

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gag ctg cgt gag acc aag cgc cgt cat gag acc cga ctg gtg gag att 240

Glu Leu Arg Glu Thr Lys Arg Arg His Glu Thr Arg Leu Val Glu Ile

| | | | | |
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| 65 | 70 | 75 | 80 | |
| gac aat ggg aag cag cgt gag ttt gag agc cgg ctg gcg gat gcg ctg | | | | 288 |
| Asp Asn Gly Lys Gln Arg Glu Phe Glu Ser Arg Leu Ala Asp Ala Leu | | | | |
| | 85 | 90 | 95 | |
| cag gaa ctg cgg gcc cag cat gag gac cag gtg gag cag tat aag aag | | | | 336 |
| Gln Glu Leu Arg Ala Gln His Glu Asp Gln Val Glu Gln Tyr Lys Lys | | | | |
| | 100 | 105 | 110 | |
| gag ctg gag aag act tat tct gcc aag ctg gac aat gcc agg cag tct | | | | 384 |
| Glu Leu Glu Lys Thr Tyr Ser Ala Lys Leu Asp Asn Ala Arg Gln Ser | | | | |
| | 115 | 120 | 125 | |
| gct gag agg aac agc aac ctg gtg ggg gct gcc cac gag gag ctg cag | | | | 432 |
| Ala Glu Arg Asn Ser Asn Leu Val Gly Ala Ala His Glu Glu Leu Gln | | | | |
| | 130 | 135 | 140 | |
| cag tcg cgc atc cgc atc gac agc ctc tct gcc cag ctc agc cag ctc | | | | 480 |
| Gln Ser Arg Ile Arg Ile Asp Ser Leu Ser Ala Gln Leu Ser Gln Leu | | | | |
| 145 | 150 | 155 | 160 | |
| cag aag cag ctg gca gcc aag gag gcg aag ctt cga gac ctg gag gac | | | | 528 |
| Gln Lys Gln Leu Ala Ala Lys Glu Ala Lys Leu Arg Asp Leu Glu Asp | | | | |
| | 165 | 170 | 175 | |
| tca ctg gcc cgt gag cgg gac acc agc cgg cgg ctg ctg gcg gaa aag | | | | 576 |
| Ser Leu Ala Arg Glu Arg Asp Thr Ser Arg Arg Leu Leu Ala Glu Lys | | | | |
| | 180 | 185 | 190 | |
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| Glu Tyr Gln Glu Leu Leu Asp Ile Lys Leu Ala Leu Asp Met Glu Ile | | | |
| 210 | 215 | 220 | |
| cac gcc tac cgc aag ctc ttg gag ggc gag gag gag agg cta cgc ctg | | | 720 |
| His Ala Tyr Arg Lys Leu Leu Glu Gly Glu Glu Glu Arg Leu Arg Leu | | | |
| 225 | 230 | 235 | 240 |
| tcc ccc agc cct acc tcg cag cgc agc cgt ggc cgt gct tcc tct cac | | | 768 |
| Ser Pro Ser Pro Thr Ser Gln Arg Ser Arg Gly Arg Ala Ser Ser His | | | |
| | 245 | 250 | 255 |
| tca tcc cag aca cag ggt ggg ggc agc gtc acc aaa aag cgc aaa ctg | | | 816 |
| Ser Ser Gln Thr Gln Gly Gly Gly Ser Val Thr Lys Lys Arg Lys Leu | | | |
| 260 | 265 | 270 | |
| gag tcc act gag agc cgc agc agc ttc tca cag cac gca cgc act agc | | | 864 |
| Glu Ser Thr Glu Ser Arg Ser Ser Phe Ser Gln His Ala Arg Thr Ser | | | |
| 275 | 280 | 285 | |
| ggg cgc gtg gcc gtg gag gag gtg gat gag gag ggc aag ttt gtc cgg | | | 912 |
| Gly Arg Val Ala Val Glu Glu Val Asp Glu Glu Gly Lys Phe Val Arg | | | |
| 290 | 295 | 300 | |
| ctg cgc aac aag tcc aat gag gac cag tcc atg ggc aat tgg cag atc | | | 960 |
| Leu Arg Asn Lys Ser Asn Glu Asp Gln Ser Met Gly Asn Trp Gln Ile | | | |
| 305 | 310 | 315 | 320 |
| aag cgc cag aat gga gat gat ccc ttg ctg act tac cgg ttc cca cca | | | 1008 |
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|---|-----|-----|------|
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| aag ttc acc ctg aag gct ggg cag gtg gtg acg atc tgg gct gca gga | | | 1056 |
| Lys Phe Thr Leu Lys Ala Gly Gln Val Val Thr Ile Trp Ala Ala Gly | | | |
| 340 | 345 | 350 | |
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| 355 | 360 | 365 | |
| aac acc tgg ggc tgc ggg aac agc ctg cgt acg gct ctc atc aac tcc | | | 1152 |
| Asn Thr Trp Gly Cys Gly Asn Ser Leu Arg Thr Ala Leu Ile Asn Ser | | | |
| 370 | 375 | 380 | |
| act ggg gaa gaa gtg gcc atg cgc aag ctg gtg cgc tca gtg act gtg | | | 1200 |
| Thr Gly Glu Glu Val Ala Met Arg Lys Leu Val Arg Ser Val Thr Val | | | |
| 385 | 390 | 395 | 400 |
| gtt gag gac gac gag gat gag gat gga gat gac ctg ctc cat cac cac | | | 1248 |
| Val Glu Asp Asp Glu Asp Glu Asp Gly Asp Asp Leu Leu His His His | | | |
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| His Gly Ser His Cys Ser Ser Ser Gly Asp Pro Ala Glu Tyr Asn Leu | | | |
| 420 | 425 | 430 | |
| cgc tcg cgc acc gtg ctg tgc ggg acc tgc ggg cag cct gcc gac aag | | | 1344 |
| Arg Ser Arg Thr Val Leu Cys Gly Thr Cys Gly Gln Pro Ala Asp Lys | | | |
| 435 | 440 | 445 | |
| gca tct gcc agc ggc tca gga gcc cag gtg ggc gga ccc atc tcc tct | | | 1392 |
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Tyr Leu Leu Gly Asn Ser Ser Pro Arg Thr Gln Ser Pro Gln Asn Cys
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<213> Homo sapiens

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| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Arg | Gly | Gln | Val | Ala | Lys | Leu | Glu | Ala | Ala | Leu | Gly | Glu | Ala | Lys | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gln | Leu | Gln | Asp | Glu | Met | Leu | Arg | Arg | Val | Asp | Ala | Glu | Asn | Arg | Leu |
| | | 35 | | | | | | 40 | | | | | 45 | | |
| Gln | Thr | Met | Lys | Glu | Glu | Leu | Asp | Phe | Gln | Lys | Asn | Ile | Tyr | Ser | Glu |
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| Asp | Asn | Gly | Lys | Gln | Arg | Glu | Phe | Glu | Ser | Arg | Leu | Ala | Asp | Ala | Leu |
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| Gln | Glu | Leu | Arg | Ala | Gln | His | Glu | Asp | Gln | Val | Glu | Gln | Tyr | Lys | Lys |
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| | | | | | | | | | | | | | | | |
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| Ser | Ser | Gln | Thr | Gln | Gly | Gly | Gly | Ser | Val | Thr | Lys | Lys | Arg | Lys | Leu |
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| Glu | Ser | Thr | Glu | Ser | Arg | Ser | Ser | Phe | Ser | Gln | His | Ala | Arg | Thr | Ser |
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| Gly | Arg | Val | Ala | Val | Glu | Glu | Val | Asp | Glu | Glu | Gly | Lys | Phe | Val | Arg |
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 Thr Gly Glu Glu Val Ala Met Arg Lys Leu Val Arg Ser Val Thr Val
 385 390 395 400
 Val Glu Asp Asp Glu Asp Glu Asp Gly Asp Asp Leu Leu His His His
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 His Gly Ser His Cys Ser Ser Ser Gly Asp Pro Ala Glu Tyr Asn Leu
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 Arg Ser Arg Thr Val Leu Cys Gly Thr Cys Gly Gln Pro Ala Asp Lys
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 Ala Ser Ala Ser Gly Ser Gly Ala Gln Val Gly Gly Pro Ile Ser Ser
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 Gly Gly Ser Gly Gly Gly Ser Phe Gly Asp Asn Leu Val Thr Arg Ser
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Ser Ile Met

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Gln Tyr Gly Pro Ser Ser Ala Ala Met Ala Trp Arg Arg Gly Ser Met
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| Asn | Ser | His | Leu | Arg | Lys | Ala | Gly | Thr | Gln | Ile | Glu | Asn | Ile | Asp | Glu | | |
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| Ile | Asn | Asn | Val | Asn | Lys | Ala | Leu | Asp | Phe | Ile | Ala | Ser | Lys | Gly | Ile | | |
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| Lys | Leu | Asp | Phe | His | Arg | Ala | Glu | Glu | Ile | Val | Asp | Gly | Asn | Ala | Lys | | |
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| atg | acc | ctg | gga | atg | atc | tgg | acc | atc | atc | ctt | agg | ttc | gcc | atc | cag | 542 | |
| Met | Thr | Leu | Gly | Met | Ile | Trp | Thr | Ile | Ile | Leu | Arg | Phe | Ala | Ile | Gln | | |
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| gac | atc | tcc | gtg | gaa | gag | acc | tcg | gcc | aag | gaa | ggg | ctc | ctt | ctc | tgg | 590 | |
| Asp | Ile | Ser | Val | Glu | Glu | Thr | Ser | Ala | Lys | Glu | Gly | Leu | Leu | Leu | Trp | | |
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| tgc | cag | aga | aag | aca | gcc | cca | tat | aag | aac | gtc | aat | gtg | cag | aac | ttc | 638 | |

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| | | | | | | | | | | | | | | | | |
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| cac | atc | agc | tgg | aag | gat | ggt | ctt | gcc | ttc | aat | gcc | ctg | atc | cac | cgg | 686 |
| His | Ile | Ser | Trp | Lys | Asp | Gly | Leu | Ala | Phe | Asn | Ala | Leu | Ile | His | Arg | |
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| His | Arg | Pro | Glu | Leu | Ile | Glu | Tyr | Asp | Lys | Leu | Arg | Lys | Asp | Asp | Pro | |
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| gtc | acc | aac | ctg | aac | aat | gcc | ttc | gaa | gtg | gct | gag | aaa | tac | ctc | gac | 782 |
| Val | Thr | Asn | Leu | Asn | Asn | Ala | Phe | Glu | Val | Ala | Glu | Lys | Tyr | Leu | Asp | |
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| atc | ccc | aag | atg | ctg | gat | gca | gag | gac | atc | gtg | aac | acg | gcc | cgg | ccc | 830 |
| Ile | Pro | Lys | Met | Leu | Asp | Ala | Glu | Asp | Ile | Val | Asn | Thr | Ala | Arg | Pro | |
| | | | | 240 | | | | 245 | | | | | | 250 | | |
| gac | gag | aag | gcc | ata | atg | acc | tat | gtg | tcc | agc | ttc | tac | cat | gcc | ttt | 878 |
| Asp | Glu | Lys | Ala | Ile | Met | Thr | Tyr | Val | Ser | Ser | Phe | Tyr | His | Ala | Phe | |
| | | | 255 | | | | | 260 | | | | | | 265 | | |
| tca | gga | gcg | cag | aag | gct | gaa | act | gaa | act | gcc | gcc | aac | cgg | atc | tgt | 926 |
| Ser | Gly | Ala | Gln | Lys | Ala | Glu | Thr | Glu | Thr | Ala | Ala | Asn | Arg | Ile | Cys | |
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| aag | gtg | ctg | gct | gtc | aac | caa | gag | aac | tgc | agc | acc | tcg | atg | gag | gac | 974 |
| Lys | Val | Leu | Ala | Val | Asn | Gln | Glu | Asn | Cys | Ser | Thr | Ser | Met | Glu | Asp | |
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| Gln | Lys | Leu | Glu | Asp | Phe | Arg | Asp | Tyr | Arg | Arg | Val | His | Lys | Pro | Pro | | |
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| Glu | Lys | Gly | Tyr | Glu | Glu | Trp | Leu | Leu | Asn | Glu | Ile | Arg | Arg | Leu | Glu | | |
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| cgg | ctc | gac | cac | ctg | gca | gag | aag | ttc | cgg | cag | aaa | gcc | tcc | atc | cac | 1358 | |
| Arg | Leu | Asp | His | Leu | Ala | Glu | Lys | Phe | Arg | Gln | Lys | Ala | Ser | Ile | His | | |
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| | | | | | | | | | | | | | | | | |
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| | 430 | | | | | 435 | | | | | | 440 | | | | |
| gag | acg | gcc | aca | cta | tcg | gac | atc | aaa | gcc | ctc | att | cgc | aag | cac | gag | 1454 |
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| gcc | ttc | gag | agc | gac | ctg | gct | gcg | cac | cag | gac | cgc | gtg | gag | cag | atc | 1502 |
| Ala | Phe | Glu | Ser | Asp | Leu | Ala | Ala | His | Gln | Asp | Arg | Val | Glu | Gln | Ile | |
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| gcc | gcc | tcc | gcc | cag | gag | ctc | aac | gag | ctg | gat | tac | tac | gac | tcc | cac | 1550 |
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| Ala His Asp Gln Phe Lys Ser Thr Leu Pro Asp Ala Asp Arg Glu Arg | |
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| gag gcc atc ctg cat cca caa gga ggc cag agg atc gct gag agc aac | 1886 |
| Glu Ala Ile Leu His Pro Gln Gly Gly Gln Arg Ile Ala Glu Ser Asn | |
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| 600 | |
| cac atc aag ctg tcg ggc agc aac ccc tac acc acc gtc acc ccg caa | 1934 |
| His Ile Lys Leu Ser Gly Ser Asn Pro Tyr Thr Thr Val Thr Pro Gln | |
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| 615 | |
| atc atc aac tcc aag tgg gag aag gtg cag cag ctg gtg cca aaa cgg | 1982 |
| Ile Ile Asn Ser Lys Trp Glu Lys Val Gln Gln Leu Val Pro Lys Arg | |
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| 630 | 635 |
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| Asp His Ala Leu Leu Glu Glu Gln Ser Lys Gln Gln Gln Ser Asn Glu | |
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| 650 | |
| cac ctg cgc cgc cag ttc gcc agc cag gcc aat gtt gtg ggg ccc tgg | 2078 |
| His Leu Arg Arg Gln Phe Ala Ser Gln Ala Asn Val Val Gly Pro Trp | |
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| 665 | |
| atc cag acc aag atg gag gag atc gcg atc tcc att gag atg aac ggg | 2126 |
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| 680 | |
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| Lys | Gln | Gln | Arg | Lys | Thr | Phe | Thr | Ala | Trp | Ser | Asn | Ser | His | Leu | Arg |
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| Lys | Ala | Gly | Thr | Gln | Ile | Glu | Asn | Ile | Asp | Glu | Asp | Phe | Arg | Asp | Gly |
| | | | | 65 | | | | 70 | | | | | 75 | | 80 |
| Leu | Lys | Leu | Met | Leu | Leu | Leu | Glu | Val | Ile | Ser | Gly | Glu | Arg | Leu | Pro |
| | | | | 85 | | | | | | 90 | | | | 95 | |

PH-1064PCT-US seq.TXT

Lys Pro Glu Arg Gly Lys Met Arg Val His Lys Ile Asn Asn Val Asn
 100 105 110
 Lys Ala Leu Asp Phe Ile Ala Ser Lys Gly Ile Lys Leu Asp Phe His
 115 120 125
 Arg Ala Glu Glu Ile Val Asp Gly Asn Ala Lys Met Thr Leu Gly Met
 130 135 140
 Ile Trp Thr Ile Ile Leu Arg Phe Ala Ile Gln Asp Ile Ser Val Glu
 145 150 155 160
 Glu Thr Ser Ala Lys Glu Gly Leu Leu Leu Trp Cys Gln Arg Lys Thr
 165 170 175
 Ala Pro Tyr Lys Asn Val Asn Val Gln Asn Phe His Ile Ser Trp Lys
 180 185 190
 Asp Gly Leu Ala Phe Asn Ala Leu Ile His Arg His Arg Pro Glu Leu
 195 200 205
 Ile Glu Tyr Asp Lys Leu Arg Lys Asp Asp Pro Val Thr Asn Leu Asn
 210 215 220
 Asn Ala Phe Glu Val Ala Glu Lys Tyr Leu Asp Ile Pro Lys Met Leu
 225 230 235 240
 Asp Ala Glu Asp Ile Val Asn Thr Ala Arg Pro Asp Glu Lys Ala Ile
 245 250 255
 Met Thr Tyr Val Ser Ser Phe Tyr His Ala Phe Ser Gly Ala Gln Lys
 260 265 270
 Ala Glu Thr Glu Thr Ala Ala Asn Arg Ile Cys Lys Val Leu Ala Val
 275 280 285

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Gln | Glu | Asn | Cys | Ser | Thr | Ser | Met | Glu | Asp | Tyr | Glu | Lys | Leu | Ala |
| 290 | | | | | | 295 | | | | | 300 | | | | |
| Ser | Asp | Leu | Leu | Glu | Trp | Ile | Arg | Arg | Thr | Ile | Pro | Trp | Leu | Glu | Asp |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | |
| Arg | Val | Pro | Gln | Lys | Thr | Ile | Gln | Glu | Met | Gln | Gln | Lys | Leu | Glu | Asp |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Phe | Arg | Asp | Tyr | Arg | Arg | Val | His | Lys | Pro | Pro | Lys | Val | Gln | Glu | Lys |
| | | 340 | | | | | | 345 | | | | | 350 | | |
| Cys | Gln | Leu | Glu | Ile | Asn | Phe | Asn | Ser | Val | Gln | Thr | Lys | Leu | Arg | Leu |
| | 355 | | | | | | 360 | | | | | 365 | | | |
| Ser | Asn | Arg | Pro | Ala | Phe | Met | Pro | Ser | Glu | Gly | Lys | Met | Val | Ser | Asp |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Ile | Asn | Asn | Gly | Trp | Gln | His | Leu | Glu | Gln | Ala | Glu | Lys | Gly | Tyr | Glu |
| 385 | | | | | 390 | | | | | 395 | | | | 400 | |
| Glu | Trp | Leu | Leu | Asn | Glu | Ile | Arg | Arg | Leu | Glu | Arg | Leu | Asp | His | Leu |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Ala | Glu | Lys | Phe | Arg | Gln | Lys | Ala | Ser | Ile | His | Glu | Ala | Trp | Thr | Asp |
| | | 420 | | | | | | 425 | | | | | 430 | | |
| Gly | Lys | Glu | Ala | Met | Leu | Lys | His | Arg | Asp | Tyr | Glu | Thr | Ala | Thr | Leu |
| | 435 | | | | | | 440 | | | | | | 445 | | |
| Ser | Asp | Ile | Lys | Ala | Leu | Ile | Arg | Lys | His | Glu | Ala | Phe | Glu | Ser | Asp |
| | 450 | | | | | 455 | | | | | | 460 | | | |
| Leu | Ala | Ala | His | Gln | Asp | Arg | Val | Glu | Gln | Ile | Ala | Ala | Ser | Ala | Gln |
| 465 | | | | | 470 | | | | | 475 | | | | 480 | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|-----|
| Glu Leu Asn Glu Leu Asp Tyr Tyr Asp Ser His Asn Val Asn Thr Arg | | | |
| 485 | 490 | 495 | |
| Cys Gln Lys Ile Cys Asp Gln Trp Asp Ala Leu Gly Ser Leu Thr His | | | |
| 500 | 505 | 510 | |
| Ser Arg Arg Glu Ala Leu Glu Lys Thr Glu Lys Gln Leu Glu Ala Ile | | | |
| 515 | 520 | 525 | |
| Ile Asp Gln Leu His Leu Glu Tyr Ala Lys Pro Ala Ala Pro Phe Asn | | | |
| 530 | 535 | 540 | |
| Asn Trp Met Glu Ser Ala Met Glu Asp Leu Gln Asp Met Phe Ile Val | | | |
| 545 | 550 | 555 | 560 |
| His Thr Ile Glu Glu Ile Glu Gly Leu Ile Ser Ala His Asp Gln Phe | | | |
| 565 | 570 | 575 | |
| Lys Ser Thr Leu Pro Asp Ala Asp Arg Glu Arg Glu Ala Ile Leu His | | | |
| 580 | 585 | 590 | |
| Pro Gln Gly Gly Gln Arg Ile Ala Glu Ser Asn His Ile Lys Leu Ser | | | |
| 595 | 600 | 605 | |
| Gly Ser Asn Pro Tyr Thr Thr Val Thr Pro Gln Ile Ile Asn Ser Lys | | | |
| 610 | 615 | 620 | |
| Trp Glu Lys Val Gln Gln Leu Val Pro Lys Arg Asp His Ala Leu Leu | | | |
| 625 | 630 | 635 | 640 |
| Glu Glu Gln Ser Lys Gln Gln Gln Ser Asn Glu His Leu Arg Arg Gln | | | |
| 645 | 650 | 655 | |
| Phe Ala Ser Gln Ala Asn Val Val Gly Pro Trp Ile Gln Thr Lys Met | | | |
| 660 | 665 | 670 | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|-----|
| Glu Glu Ile Ala Ile Ser Ile Glu Met Asn Gly Thr Leu Glu Asp Gln | | | |
| 675 | 680 | 685 | |
| Leu Ser His Leu Lys Gln Tyr Glu Arg Ser Ile Val Asp Tyr Lys Pro | | | |
| 690 | 695 | 700 | |
| Asn Leu Asp Leu Leu Glu Gln Gln His Gln Leu Ile Gln Glu Ala Leu | | | |
| 705 | 710 | 715 | 720 |
| Ile Phe Asp Asn Lys His Thr Asn Tyr Thr Met Glu His Ile Arg Val | | | |
| 725 | 730 | 735 | |
| Gly Trp Glu Gln Leu Leu Thr Thr Ile Ala Arg Thr Ile Asn Glu Val | | | |
| 740 | 745 | 750 | |
| Glu Asn Gln Ile Leu Thr Arg Asp Ala Lys Gly Ile Ser Gln Glu Gln | | | |
| 755 | 760 | 765 | |
| Met Gln Glu Phe Arg Ala Ser Phe Asn His Phe Asp Lys Asp His Gly | | | |
| 770 | 775 | 780 | |
| Gly Ala Leu Gly Arg Gly Val Gln Gly Leu Pro His Gln Pro Gly Leu | | | |
| 785 | 790 | 795 | 800 |
| Arg Arg Gly Glu Arg Pro Ala Gly Glu Ala Glu Phe Asn Arg Ile Met | | | |
| 805 | 810 | 815 | |
| Ser Leu Val Asp Pro Asn His Ser Gly Leu Val Thr Phe Gln Ala Phe | | | |
| 820 | 825 | 830 | |
| Ile Asp Phe Met Ser Arg Glu Thr Thr Asp Thr Asp Thr Ala Asp Gln | | | |
| 835 | 840 | 845 | |
| Val Ile Thr Ser Phe Lys Val Leu Ala Gly Asp Lys Asn Phe Ile Thr | | | |
| 850 | 855 | 860 | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Glu | Glu | Leu | Arg | Arg | Glu | Leu | Pro | Pro | Asp | Gln | Ala | Glu | Tyr | Cys |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Ile | Ala | Arg | Met | Ala | Pro | Tyr | Gln | Gly | Pro | Asp | Gly | Val | Arg | Gly | Ala |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Leu | Asp | Tyr | Lys | Ser | Phe | Ser | Thr | Ala | Leu | Tyr | Gly | Glu | Ser | Asp | Leu |
| | | | 900 | | | | | | 905 | | | | | 910 | |

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<211> 8971

<212> DNA

<213> Homo sapiens

<220>

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<222> (110)..(8224)

<400> 43

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Met Pro Ser

1

acg gag aag gac ctg gcg gag gac gcg ccg tgg aag aag atc cag cag 166

Thr Glu Lys Asp Leu Ala Glu Asp Ala Pro Trp Lys Lys Ile Gln Gln

5

10

15

aac aca ttc acg cgc tgg tgc aat gag cac ctc aag tgc gtg ggc aag 214

Asn Thr Phe Thr Arg Trp Cys Asn Glu His Leu Lys Cys Val Gly Lys

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|-----|
| 20 | 25 | 30 | 35 | |
| cgc ctg acc gac ctg cag cgc gac ctc agc gac ggg ctc cgg ctc atc | | | | 262 |
| Arg Leu Thr Asp Leu Gln Arg Asp Leu Ser Asp Gly Leu Arg Leu Ile | | | | |
| | 40 | 45 | 50 | |
| gcg ctg ctc gag gtg ctc agc cag aag cgc atg tac cgc aag ttc cat | | | | 310 |
| Ala Leu Leu Glu Val Leu Ser Gln Lys Arg Met Tyr Arg Lys Phe His | | | | |
| | 55 | 60 | 65 | |
| ccg cgc ccc aac ttc cgc caa atg aag ctg gag aac gtg tcc gtg gcc | | | | 358 |
| Pro Arg Pro Asn Phe Arg Gln Met Lys Leu Glu Asn Val Ser Val Ala | | | | |
| | 70 | 75 | 80 | |
| ctc gag ttc ctc gag cgc gag cac atc aag ctc gtg tcc ata gac agc | | | | 406 |
| Leu Glu Phe Leu Glu Arg Glu His Ile Lys Leu Val Ser Ile Asp Ser | | | | |
| | 85 | 90 | 95 | |
| aag gcc atc gtg gat ggg aac ctg aag ctg atc ctg ggc ctg atc tgg | | | | 454 |
| Lys Ala Ile Val Asp Gly Asn Leu Lys Leu Ile Leu Gly Leu Ile Trp | | | | |
| 100 | 105 | 110 | 115 | |
| acg ctg atc ctg cac tac tcc atc tcc atg ccc atg tgg gag gat gaa | | | | 502 |
| Thr Leu Ile Leu His Tyr Ser Ile Ser Met Pro Met Trp Glu Asp Glu | | | | |
| | 120 | 125 | 130 | |
| gat gat gag gat gcc cgc aaa cag acg ccc aag cag cgg ctg ctt ggc | | | | 550 |
| Asp Asp Glu Asp Ala Arg Lys Gln Thr Pro Lys Gln Arg Leu Leu Gly | | | | |
| | 135 | 140 | 145 | |
| tgg atc cag aac aag gtg ccc cag ctg ccc atc acc aac ttc aac cgt | | | | 598 |
| Trp Ile Gln Asn Lys Val Pro Gln Leu Pro Ile Thr Asn Phe Asn Arg | | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|-----|
| 150 | 155 | 160 | |
| gac tgg cag gac ggc aaa gct ctg ggc gcc ctg gtg gac aac tgc gcc | | | 646 |
| Asp Trp Gln Asp Gly Lys Ala Leu Gly Ala Leu Val Asp Asn Cys Ala | | | |
| 165 | 170 | 175 | |
| ccc ggt ctc tgc ccc gac tgg gag gcc tgg gat ccc aac cag ccc gtg | | | 694 |
| Pro Gly Leu Cys Pro Asp Trp Glu Ala Trp Asp Pro Asn Gln Pro Val | | | |
| 180 | 185 | 190 | 195 |
| gag aac tcc cgg gag gcc atg cag cag gcc gac gac tgg ctt ggg gtg | | | 742 |
| Glu Asn Ser Arg Glu Ala Met Gln Gln Ala Asp Asp Trp Leu Gly Val | | | |
| 200 | 205 | 210 | |
| ccc cag gtc att gcc cct gag gag att gtg gac ccc aac gtg gat gag | | | 790 |
| Pro Gln Val Ile Ala Pro Glu Glu Ile Val Asp Pro Asn Val Asp Glu | | | |
| 215 | 220 | 225 | |
| cat tct gtt atg acc tac ctg tcc cag ttc ccc aag gcc aag ctc aaa | | | 838 |
| His Ser Val Met Thr Tyr Leu Ser Gln Phe Pro Lys Ala Lys Leu Lys | | | |
| 230 | 235 | 240 | |
| cct ggt gcc cct gtt cga tcc aag cag ctg aac ccc aag aaa gcc atc | | | 886 |
| Pro Gly Ala Pro Val Arg Ser Lys Gln Leu Asn Pro Lys Lys Ala Ile | | | |
| 245 | 250 | 255 | |
| gcc tat ggg cct ggc atc gag cca cag ggc aac acc gtg ctg cag cct | | | 934 |
| Ala Tyr Gly Pro Gly Ile Glu Pro Gln Gly Asn Thr Val Leu Gln Pro | | | |
| 260 | 265 | 270 | 275 |
| gcc cac ttc acc gtg cag acg gtg gac gcg ggc gtg ggc gag gtg ctg | | | 982 |
| Ala His Phe Thr Val Gln Thr Val Asp Ala Gly Val Gly Glu Val Leu | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 280 | 285 | 290 | |
| gtc tac atc gag gac cct gaa ggc cac acc gag gag gct aag gtg gtt | | | 1030 |
| Val Tyr Ile Glu Asp Pro Glu Gly His Thr Glu Glu Ala Lys Val Val | | | |
| 295 | 300 | 305 | |
| ccc aac aat gac aag gat cgc acc tat gct gtc tcc tat gtg ccc aag | | | 1078 |
| Pro Asn Asn Asp Lys Asp Arg Thr Tyr Ala Val Ser Tyr Val Pro Lys | | | |
| 310 | 315 | 320 | |
| gtc gct ggg tta cac aag gtg acc gtg ctc ttt gct ggc cag aac att | | | 1126 |
| Val Ala Gly Leu His Lys Val Thr Val Leu Phe Ala Gly Gln Asn Ile | | | |
| 325 | 330 | 335 | |
| gaa cgc agt ccc ttt gag gtg aac gtg ggc atg gcc ctg gga gat gcc | | | 1174 |
| Glu Arg Ser Pro Phe Glu Val Asn Val Gly Met Ala Leu Gly Asp Ala | | | |
| 340 | 345 | 350 | 355 |
| aac aag gtg tca gcc cgt ggc cct ggc ctg gaa cct gtg ggc aat gtg | | | 1222 |
| Asn Lys Val Ser Ala Arg Gly Pro Gly Leu Glu Pro Val Gly Asn Val | | | |
| 360 | 365 | 370 | |
| gcc aac aaa ccc acc tac ttt gac atc tac act gcg ggg gcc ggc act | | | 1270 |
| Ala Asn Lys Pro Thr Tyr Phe Asp Ile Tyr Thr Ala Gly Ala Gly Thr | | | |
| 375 | 380 | 385 | |
| ggc gat gtt gct gtg gtg atc gtg gac cca cag ggc cgg cgg gac aca | | | 1318 |
| Gly Asp Val Ala Val Val Ile Val Asp Pro Gln Gly Arg Arg Asp Thr | | | |
| 390 | 395 | 400 | |
| gtg gag gtg gcc ctg gag gac aag ggt gac agc acg ttc cgc tgc aca | | | 1366 |
| Val Glu Val Ala Leu Glu Asp Lys Gly Asp Ser Thr Phe Arg Cys Thr | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|-----|-----|
| 405 | 410 | 415 | |
| tac aga cct gcc atg gag ggg cca cat acc gtg cat gtg gcc ttt gcg | 1414 | | |
| Tyr Arg Pro Ala Met Glu Gly Pro His Thr Val His Val Ala Phe Ala | | | |
| 420 | 425 | 430 | 435 |
| ggt gcc ccc atc acc cgc agt ccc ttc cct gtc cat gtg tcg gaa gcc | 1462 | | |
| Gly Ala Pro Ile Thr Arg Ser Pro Phe Pro Val His Val Ser Glu Ala | | | |
| 440 | 445 | 450 | |
| tgt aac ccc aac gcc tgc cgc gcc tct ggg cga ggc ctg cag ccc aag | 1510 | | |
| Cys Asn Pro Asn Ala Cys Arg Ala Ser Gly Arg Gly Leu Gln Pro Lys | | | |
| 455 | 460 | 465 | |
| ggt gtt cgc gtg aaa gag gtg gct gac ttc aag gtg ttt acc aag ggt | 1558 | | |
| Gly Val Arg Val Lys Glu Val Ala Asp Phe Lys Val Phe Thr Lys Gly | | | |
| 470 | 475 | 480 | |
| gcc ggc agc ggg gag ctc aag gtc acg gtc aag ggg cca aag ggc aca | 1606 | | |
| Ala Gly Ser Gly Glu Leu Lys Val Thr Val Lys Gly Pro Lys Gly Thr | | | |
| 485 | 490 | 495 | |
| gag gag cca gtg aag gtg cgg gag gct ggg gat ggt gtg ttc gag tgc | 1654 | | |
| Glu Glu Pro Val Lys Val Arg Glu Ala Gly Asp Gly Val Phe Glu Cys | | | |
| 500 | 505 | 510 | 515 |
| gag tac tac ccg gtg gtg cct ggg aag tat gtg gtg acc atc acg tgg | 1702 | | |
| Glu Tyr Tyr Pro Val Val Pro Gly Lys Tyr Val Val Thr Ile Thr Trp | | | |
| 520 | 525 | 530 | |
| ggc ggc tac gcc atc cct cgc agc ccc ttt gag gta cag gtg agc cca | 1750 | | |
| Gly Gly Tyr Ala Ile Pro Arg Ser Pro Phe Glu Val Gln Val Ser Pro | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 535 | 540 | 545 | |
| gag gca gga gtg caa aag gtc cgg gcc tgg ggt cct ggt ttg gag act | | | 1798 |
| Glu Ala Gly Val Gln Lys Val Arg Ala Trp Gly Pro Gly Leu Glu Thr | | | |
| 550 | 555 | 560 | |
| ggc cag gtg ggc aag tca gcc gat ttt gtg gtg gaa gcc att ggc acc | | | 1846 |
| Gly Gln Val Gly Lys Ser Ala Asp Phe Val Val Glu Ala Ile Gly Thr | | | |
| 565 | 570 | 575 | |
| gag gtg ggg aca ctg ggc ttc tcc atc gag ggg ccc tca caa gcc aag | | | 1894 |
| Glu Val Gly Thr Leu Gly Phe Ser Ile Glu Gly Pro Ser Gln Ala Lys | | | |
| 580 | 585 | 590 | 595 |
| atc gaa tgt gac gat aag ggg gat ggc tcc tgc gat gtg cgg tac tgg | | | 1942 |
| Ile Glu Cys Asp Asp Lys Gly Asp Gly Ser Cys Asp Val Arg Tyr Trp | | | |
| 600 | 605 | 610 | |
| ccc acg gag cct ggg gag tac gct gtg cac gtc atc tgt gac gat gag | | | 1990 |
| Pro Thr Glu Pro Gly Glu Tyr Ala Val His Val Ile Cys Asp Asp Glu | | | |
| 615 | 620 | 625 | |
| gac atc cga gac tca ccc ttc att gcc cac atc ctg ccc gcc cca cct | | | 2038 |
| Asp Ile Arg Asp Ser Pro Phe Ile Ala His Ile Leu Pro Ala Pro Pro | | | |
| 630 | 635 | 640 | |
| gac tgc ttc cca gat aag gtg aag gcc ttt ggg cct ggc ctg gag cct | | | 2086 |
| Asp Cys Phe Pro Asp Lys Val Lys Ala Phe Gly Pro Gly Leu Glu Pro | | | |
| 645 | 650 | 655 | |
| acc ggc tgc atc gtg gac aag ccc gct gag ttc acc att gat gct cgt | | | 2134 |
| Thr Gly Cys Ile Val Asp Lys Pro Ala Glu Phe Thr Ile Asp Ala Arg | | | |

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|------|
| 660 | 665 | 670 | 675 | |
| gca gct ggc aag gga gac ctg aag ctc tat gcc cag gac gcc gac ggc | | | | 2182 |
| Ala Ala Gly Lys Gly Asp Leu Lys Leu Tyr Ala Gln Asp Ala Asp Gly | | | | |
| | 680 | 685 | 690 | |
| tgt ccc atc gac atc aag gtg atc ccc aac ggc aac ggc acc ttc cgc | | | | 2230 |
| Cys Pro Ile Asp Ile Lys Val Ile Pro Asn Gly Asn Gly Thr Phe Arg | | | | |
| | 695 | 700 | 705 | |
| tgc tcc tac gtg ccc acc aag ccc att aag cac acc atc atc atc tcc | | | | 2278 |
| Cys Ser Tyr Val Pro Thr Lys Pro Ile Lys His Thr Ile Ile Ile Ser | | | | |
| | 710 | 715 | 720 | |
| tgg gga ggc gta aac gtg ccc aag agc ccc ttc cgg gtg aac gtg ggc | | | | 2326 |
| Trp Gly Gly Val Asn Val Pro Lys Ser Pro Phe Arg Val Asn Val Gly | | | | |
| | 725 | 730 | 735 | |
| gag ggc agc cac ccc gag cgg gta aag gtg tac ggc ccc gga gtg gag | | | | 2374 |
| Glu Gly Ser His Pro Glu Arg Val Lys Val Tyr Gly Pro Gly Val Glu | | | | |
| 740 | 745 | 750 | 755 | |
| aag aca ggc ctc aag gcc aat gag ccc acc tac ttc acg gtg gac tgc | | | | 2422 |
| Lys Thr Gly Leu Lys Ala Asn Glu Pro Thr Tyr Phe Thr Val Asp Cys | | | | |
| | 760 | 765 | 770 | |
| agc gag gcg ggg caa ggc gac gtg agc atc ggc atc aag tgc gcc cca | | | | 2470 |
| Ser Glu Ala Gly Gln Gly Asp Val Ser Ile Gly Ile Lys Cys Ala Pro | | | | |
| | 775 | 780 | 785 | |
| ggc gtg gtg ggc cct gca gag gct gac att gac ttc gac atc atc aag | | | | 2518 |
| Gly Val Val Gly Pro Ala Glu Ala Asp Ile Asp Phe Asp Ile Ile Lys | | | | |

PH-1064PCT-US seq.TXT

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790                                795                                800
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Asn Asp Asn Asp Thr Phe Thr Val Lys Tyr Thr Pro Pro Gly Ala Gly
805                                810                                815
cgc tac acc atc atg gtg ctg ttt gcc aac cag gag atc ccc gcc agc 2614
Arg Tyr Thr Ile Met Val Leu Phe Ala Asn Gln Glu Ile Pro Ala Ser
820                                825                                830                                835
ccc ttc cac atc aag gtg gac cca tcc cac gat gcc agc aaa gtc aag 2662
Pro Phe His Ile Lys Val Asp Pro Ser His Asp Ala Ser Lys Val Lys
840                                845                                850
gcc gag ggc cct ggg ctg aat cgc aca ggt gtg gaa gtc ggg aag ccc 2710
Ala Glu Gly Pro Gly Leu Asn Arg Thr Gly Val Glu Val Gly Lys Pro
855                                860                                865
acc cac ttc acg gtg ctg acc aag gga gcc ggc aag gcc aag ctg gat 2758
Thr His Phe Thr Val Leu Thr Lys Gly Ala Gly Lys Ala Lys Leu Asp
870                                875                                880
gtg cag ttt gca ggg aca gcc aag ggc gag gtt gtg cgg gac ttt gag 2806
Val Gln Phe Ala Gly Thr Ala Lys Gly Glu Val Val Arg Asp Phe Glu
885                                890                                895
atc ata gac aac cat gac tac tcc tac act gtc aag tac acc gct gtc 2854
Ile Ile Asp Asn His Asp Tyr Ser Tyr Thr Val Lys Tyr Thr Ala Val
900                                905                                910                                915
cag cag ggc aac atg gca gtg aca gtg act tat ggc ggg gac cct gtc 2902
Gln Gln Gly Asn Met Ala Val Thr Val Thr Tyr Gly Gly Asp Pro Val

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PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| 920 | 925 | 930 | |
| ccc aag agc ccc ttt gtg gtg aat gtg gca ccc ccg ctg gac ctc agc | | | 2950 |
| Pro Lys Ser Pro Phe Val Val Asn Val Ala Pro Pro Leu Asp Leu Ser | | | |
| 935 | 940 | 945 | |
| aaa atc aaa gtt cag ggc ctt aat agc aag gtg gct gtg gga cag gaa | | | 2998 |
| Lys Ile Lys Val Gln Gly Leu Asn Ser Lys Val Ala Val Gly Gln Glu | | | |
| 950 | 955 | 960 | |
| caa gca ttc tct gtg aac aca cga ggg gct ggc ggt cag ggc caa ctg | | | 3046 |
| Gln Ala Phe Ser Val Asn Thr Arg Gly Ala Gly Gly Gln Gly Gln Leu | | | |
| 965 | 970 | 975 | |
| gat gtg cgg atg act tcg ccc tct cgc cgg ccc atc ccc tgc aag ctg | | | 3094 |
| Asp Val Arg Met Thr Ser Pro Ser Arg Arg Pro Ile Pro Cys Lys Leu | | | |
| 980 | 985 | 990 | 995 |
| gag cca ggc ggt gga gcg gaa gcc cag gct gtg cgc tac atg ccc ccg | | | 3142 |
| Glu Pro Gly Gly Gly Ala Glu Ala Gln Ala Val Arg Tyr Met Pro Pro | | | |
| 1000 | 1005 | 1010 | |
| gag gag ggg ccc tac aag gtg gat atc acc tac gat ggt cac ccg gtg | | | 3190 |
| Glu Glu Gly Pro Tyr Lys Val Asp Ile Thr Tyr Asp Gly His Pro Val | | | |
| 1015 | 1020 | 1025 | |
| cct ggc agc ccg ttt gct gtg gag ggt gtc ctg ccc cct gat ccc tcc | | | 3238 |
| Pro Gly Ser Pro Phe Ala Val Glu Gly Val Leu Pro Pro Asp Pro Ser | | | |
| 1030 | 1035 | 1040 | |
| aag gtc tgt gct tat ggc ccg ggt ctc aag ggt gga ctg gta ggc acc | | | 3286 |
| Lys Val Cys Ala Tyr Gly Pro Gly Leu Lys Gly Gly Leu Val Gly Thr | | | |

PH-1064PCT-US seq.TXT

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1045          1050          1055
ccc gcg cca ttc tcc atc gac acc aag ggg gct ggc aca ggt ggc ctg 3334
Pro Ala Pro Phe Ser Ile Asp Thr Lys Gly Ala Gly Thr Gly Gly Leu
1060          1065          1070          1075
ggg ctg acc gta gag ggc ccc tgc gag gcc aag atc gag tgc cag gac 3382
Gly Leu Thr Val Glu Gly Pro Cys Glu Ala Lys Ile Glu Cys Gln Asp
          1080          1085          1090
aat ggt gat ggc tca tgt gct gtc agc tac ctg ccc acg gag cct ggc 3430
Asn Gly Asp Gly Ser Cys Ala Val Ser Tyr Leu Pro Thr Glu Pro Gly
          1095          1100          1105
gag tac acc atc aac atc ctg ttt gct gag gcc cac atc cct ggc tcg 3478
Glu Tyr Thr Ile Asn Ile Leu Phe Ala Glu Ala His Ile Pro Gly Ser
          1110          1115          1120
ccc ttc aaa gcc acc att cgg cct gtg ttt gac ccg agc aag gtg cgg 3526
Pro Phe Lys Ala Thr Ile Arg Pro Val Phe Asp Pro Ser Lys Val Arg
          1125          1130          1135
gcc agt gga ccg ggc ctg gag cgc ggc aag gtc ggt gag gca gcc acc 3574
Ala Ser Gly Pro Gly Leu Glu Arg Gly Lys Val Gly Glu Ala Ala Thr
1140          1145          1150          1155
ttc act gtg gac tgc tca gag gca ggc gag gcg gag ctg acc att gag 3622
Phe Thr Val Asp Cys Ser Glu Ala Gly Glu Ala Glu Leu Thr Ile Glu
          1160          1165          1170
atc ctg tcg gat gcc ggg gtc aag gcc gag gtg ctg atc cac aac aac 3670
Ile Leu Ser Asp Ala Gly Val Lys Ala Glu Val Leu Ile His Asn Asn

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|---|------|------|------|
| 1175 | 1180 | 1185 | |
| gcg gat ggc acc tac cac atc acc tac agc cct gcc ttc cct ggc acc | | | 3718 |
| Ala Asp Gly Thr Tyr His Ile Thr Tyr Ser Pro Ala Phe Pro Gly Thr | | | |
| 1190 | 1195 | 1200 | |
| tac acc att acc atc aag tat ggc ggg cat ccc gtg ccc aaa ttc ccc | | | 3766 |
| Tyr Thr Ile Thr Ile Lys Tyr Gly Gly His Pro Val Pro Lys Phe Pro | | | |
| 1205 | 1210 | 1215 | |
| acc cgt gtc cat gtg cag cct gcg gtc gat acc agt ggc gtc aag gtc | | | 3814 |
| Thr Arg Val His Val Gln Pro Ala Val Asp Thr Ser Gly Val Lys Val | | | |
| 1220 | 1225 | 1230 | 1235 |
| tca ggg cct ggt gtt gag cca cac ggt gtc ctg cgg gag gtg acc act | | | 3862 |
| Ser Gly Pro Gly Val Glu Pro His Gly Val Leu Arg Glu Val Thr Thr | | | |
| 1240 | 1245 | 1250 | |
| gag ttc act gtg gat gca aga tcc cta aca gcc aca ggc ggc aac cac | | | 3910 |
| Glu Phe Thr Val Asp Ala Arg Ser Leu Thr Ala Thr Gly Gly Asn His | | | |
| 1255 | 1260 | 1265 | |
| gtg acg gct cgt gtg ctc aac ccc tcg ggg gcc aag aca gac acc tat | | | 3958 |
| Val Thr Ala Arg Val Leu Asn Pro Ser Gly Ala Lys Thr Asp Thr Tyr | | | |
| 1270 | 1275 | 1280 | |
| gtg aca gac aat ggg gac ggc acc tac cga gtg cag tac acc gcc tac | | | 4006 |
| Val Thr Asp Asn Gly Asp Gly Thr Tyr Arg Val Gln Tyr Thr Ala Tyr | | | |
| 1285 | 1290 | 1295 | |
| gag gag ggc gtg cat ctg gtg gag gtc ctg tat gat gag gtc gct gtg | | | 4054 |
| Glu Glu Gly Val His Leu Val Glu Val Leu Tyr Asp Glu Val Ala Val | | | |

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|---|------|------|------|------|
| 1300 | 1305 | 1310 | 1315 | |
| ccc aag agc ccc ttc cga gtg ggc gtg acc gag ggc tgt gat ccc acc | | | | 4102 |
| Pro Lys Ser Pro Phe Arg Val Gly Val Thr Glu Gly Cys Asp Pro Thr | | | | |
| | 1320 | 1325 | 1330 | |
| cgc gtc cga gcc ttc ggg cca ggc ctg gag ggt ggc ttg gtc aac aag | | | | 4150 |
| Arg Val Arg Ala Phe Gly Pro Gly Leu Glu Gly Gly Leu Val Asn Lys | | | | |
| | 1335 | 1340 | 1345 | |
| gcc aac cga ttc act gtg gag acc agg gga gcg ggc acc ggg ggc ctt | | | | 4198 |
| Ala Asn Arg Phe Thr Val Glu Thr Arg Gly Ala Gly Thr Gly Gly Leu | | | | |
| | 1350 | 1355 | 1360 | |
| ggc cta gcc atc gag ggt ccc tcg gaa gcc aag atg tcc tgc aag gac | | | | 4246 |
| Gly Leu Ala Ile Glu Gly Pro Ser Glu Ala Lys Met Ser Cys Lys Asp | | | | |
| | 1365 | 1370 | 1375 | |
| aac aag gat ggt agc tgc acc gtg gag tac atc ccc ttc act cct gga | | | | 4294 |
| Asn Lys Asp Gly Ser Cys Thr Val Glu Tyr Ile Pro Phe Thr Pro Gly | | | | |
| 1380 | 1385 | 1390 | 1395 | |
| gac tat gac gtc aac atc acc ttc ggg ggg cgg ccc atc cca ggg agc | | | | 4342 |
| Asp Tyr Asp Val Asn Ile Thr Phe Gly Gly Arg Pro Ile Pro Gly Ser | | | | |
| | 1400 | 1405 | 1410 | |
| ccg ttc cgc gtg cca gtg aag gat gtg gtg gac cct ggg aag gtg aag | | | | 4390 |
| Pro Phe Arg Val Pro Val Lys Asp Val Val Asp Pro Gly Lys Val Lys | | | | |
| | 1415 | 1420 | 1425 | |
| tgc tca ggg cca ggg ctg ggg gct ggt gtc agg gcc cgg gtt cct cag | | | | 4438 |
| Cys Ser Gly Pro Gly Leu Gly Ala Gly Val Arg Ala Arg Val Pro Gln | | | | |

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|---|------|------|------|
| 1430 | 1435 | 1440 | |
| acc ttc aca gtg gac tgc agt caa gct ggc cgg gcg ccc ctg cag gtg | | | 4486 |
| Thr Phe Thr Val Asp Cys Ser Gln Ala Gly Arg Ala Pro Leu Gln Val | | | |
| 1445 | 1450 | 1455 | |
| gct gtg ctg ggc ccc aca ggt gtg gcc gag cct gtg gag gtg cgg gac | | | 4534 |
| Ala Val Leu Gly Pro Thr Gly Val Ala Glu Pro Val Glu Val Arg Asp | | | |
| 1460 | 1465 | 1470 | 1475 |
| aat gga gat ggc acc cac act gtc cac tac acc cca gcc act gac ggg | | | 4582 |
| Asn Gly Asp Gly Thr His Thr Val His Tyr Thr Pro Ala Thr Asp Gly | | | |
| | 1480 | 1485 | 1490 |
| ccc tac acg gta gcc gtc aag tat gct gac cag gag gtg cca cgc agc | | | 4630 |
| Pro Tyr Thr Val Ala Val Lys Tyr Ala Asp Gln Glu Val Pro Arg Ser | | | |
| 1495 | 1500 | 1505 | |
| ccc ttc aag atc aag gtc ctc cca gct cat gat gcc agc aag gtg cgg | | | 4678 |
| Pro Phe Lys Ile Lys Val Leu Pro Ala His Asp Ala Ser Lys Val Arg | | | |
| 1510 | 1515 | 1520 | |
| gcc agc ggg cca ggc ctc aac gcc tct ggc atc cct gcc agc ctg cct | | | 4726 |
| Ala Ser Gly Pro Gly Leu Asn Ala Ser Gly Ile Pro Ala Ser Leu Pro | | | |
| 1525 | 1530 | 1535 | |
| gtg gag ttc acc atc gac gca cgg gac gcg ggc gag ggg ttg ctc act | | | 4774 |
| Val Glu Phe Thr Ile Asp Ala Arg Asp Ala Gly Glu Gly Leu Leu Thr | | | |
| 1540 | 1545 | 1550 | 1555 |
| gtc cag atc ttg ggc ccc gag ggt aag ccc aag aag gcc aac atc cgg | | | 4822 |
| Val Gln Ile Leu Gly Pro Glu Gly Lys Pro Lys Lys Ala Asn Ile Arg | | | |

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|--|------|------|------|
| 1560 | 1565 | 1570 | |
| gac aat ggg gat ggc acg tac gct gtg tcc tac ctg ccg gac atg agt 4870 | | | |
| Asp Asn Gly Asp Gly Thr Tyr Ala Val Ser Tyr Leu Pro Asp Met Ser | | | |
| 1575 | 1580 | 1585 | |
| ggc cgg tac acc atc acc atc aag tat ggc ggt gat gag atc ccc tac 4918 | | | |
| Gly Arg Tyr Thr Ile Thr Ile Lys Tyr Gly Gly Asp Glu Ile Pro Tyr | | | |
| 1590 | 1595 | 1600 | |
| tcg ccc ttc cgc atc cat gct ctg ccc act ggg gat gcc agc aag tgc 4966 | | | |
| Ser Pro Phe Arg Ile His Ala Leu Pro Thr Gly Asp Ala Ser Lys Cys | | | |
| 1605 | 1610 | 1615 | |
| ctc gtc aca gtg tcc att gga ggc cat ggc ctg ggt gcc tgc ctg ggc 5014 | | | |
| Leu Val Thr Val Ser Ile Gly Gly His Gly Leu Gly Ala Cys Leu Gly | | | |
| 1620 | 1625 | 1630 | 1635 |
| cct cga atc cag att ggg cag gag acg gtg atc acg gtg gat gcc aag 5062 | | | |
| Pro Arg Ile Gln Ile Gly Gln Glu Thr Val Ile Thr Val Asp Ala Lys | | | |
| 1640 | 1645 | 1650 | |
| gca gcc ggt gag ggg aag gtg aca tgc acg gtg tcc acg ccg gat ggg 5110 | | | |
| Ala Ala Gly Glu Gly Lys Val Thr Cys Thr Val Ser Thr Pro Asp Gly | | | |
| 1655 | 1660 | 1665 | |
| gca gag ctc gat gtg gat gtg gtt gag aac cat gac ggt acc ttt gac 5158 | | | |
| Ala Glu Leu Asp Val Asp Val Val Glu Asn His Asp Gly Thr Phe Asp | | | |
| 1670 | 1675 | 1680 | |
| atc tac tac aca gcg ccc gag ccg ggc aag tac gtc atc acc atc cgc 5206 | | | |
| Ile Tyr Tyr Thr Ala Pro Glu Pro Gly Lys Tyr Val Ile Thr Ile Arg | | | |

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| | | | |
|---|------|------|------|
| 1685 | 1690 | 1695 | |
| ttc ggg ggt gag cac atc ccc aac agc ccc ttc cac gtg ctg gcg tgt | | | 5254 |
| Phe Gly Gly Glu His Ile Pro Asn Ser Pro Phe His Val Leu Ala Cys | | | |
| 1700 | 1705 | 1710 | 1715 |
| gac ccc ctg ccg cac gag gag gag ccc tct gaa gtg cca cag ctg cgc | | | 5302 |
| Asp Pro Leu Pro His Glu Glu Glu Pro Ser Glu Val Pro Gln Leu Arg | | | |
| | 1720 | 1725 | 1730 |
| cag ccc tac gct cct ccc cgg ccc ggc gcc cgc ccc aca cac tgg gcc | | | 5350 |
| Gln Pro Tyr Ala Pro Pro Arg Pro Gly Ala Arg Pro Thr His Trp Ala | | | |
| | 1735 | 1740 | 1745 |
| aca gag gag cca gtg gtg cct gtg gag cca atg gag tcc atg ctg agg | | | 5398 |
| Thr Glu Glu Pro Val Val Pro Val Glu Pro Met Glu Ser Met Leu Arg | | | |
| | 1750 | 1755 | 1760 |
| ccc ttc aac ctg gtc atc ccc ttc gcg gtg cag aaa ggg gag ctc aca | | | 5446 |
| Pro Phe Asn Leu Val Ile Pro Phe Ala Val Gln Lys Gly Glu Leu Thr | | | |
| | 1765 | 1770 | 1775 |
| gga gag gtg cgg atg ccc tcg ggg aag acg gca cgg ccc aac atc acc | | | 5494 |
| Gly Glu Val Arg Met Pro Ser Gly Lys Thr Ala Arg Pro Asn Ile Thr | | | |
| 1780 | 1785 | 1790 | 1795 |
| gac aac aag gac ggc acc atc acg gtg agg tat gca ccc act gag aaa | | | 5542 |
| Asp Asn Lys Asp Gly Thr Ile Thr Val Arg Tyr Ala Pro Thr Glu Lys | | | |
| | 1800 | 1805 | 1810 |
| ggc ctg cac cag atg ggg atc aag tat gac ggc aac cac atc cct ggg | | | 5590 |
| Gly Leu His Gln Met Gly Ile Lys Tyr Asp Gly Asn His Ile Pro Gly | | | |

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| | | | |
|---|------|------|------|
| 1815 | 1820 | 1825 | |
| agc ccc tta cag ttc tat gtg gat gcc atc aac agc cgc cat gtc agt | | | 5638 |
| Ser Pro Leu Gln Phe Tyr Val Asp Ala Ile Asn Ser Arg His Val Ser | | | |
| 1830 | 1835 | 1840 | |
| gcc tat ggg cca ggc ctg agc cat ggc atg gtc aac aag cca gcc acc | | | 5686 |
| Ala Tyr Gly Pro Gly Leu Ser His Gly Met Val Asn Lys Pro Ala Thr | | | |
| 1845 | 1850 | 1855 | |
| ttc act att gtc acc aaa gat gct gga gaa ggg ggt ctg tca ctg gcc | | | 5734 |
| Phe Thr Ile Val Thr Lys Asp Ala Gly Glu Gly Gly Leu Ser Leu Ala | | | |
| 1860 | 1865 | 1870 | 1875 |
| gtg gag ggc cca tcc aag gca gag atc acc tgt aag gac aac aag gat | | | 5782 |
| Val Glu Gly Pro Ser Lys Ala Glu Ile Thr Cys Lys Asp Asn Lys Asp | | | |
| 1880 | 1885 | 1890 | |
| ggc acc tgc acc gtg tcc tat ctg ccg act gcg cct gga gac tac agc | | | 5830 |
| Gly Thr Cys Thr Val Ser Tyr Leu Pro Thr Ala Pro Gly Asp Tyr Ser | | | |
| 1895 | 1900 | 1905 | |
| atc atc gtg cgc ttc gat gac aag cac atc ccg ggg agc ccc ttc aca | | | 5878 |
| Ile Ile Val Arg Phe Asp Asp Lys His Ile Pro Gly Ser Pro Phe Thr | | | |
| 1910 | 1915 | 1920 | |
| gcc aag atc aca ggt gat gac tcc atg agg acc tca cag ctg aat gtg | | | 5926 |
| Ala Lys Ile Thr Gly Asp Asp Ser Met Arg Thr Ser Gln Leu Asn Val | | | |
| 1925 | 1930 | 1935 | |
| ggc acc tcc acg gac gtg tca ctg aag atc acc gag agt gat ctg agc | | | 5974 |
| Gly Thr Ser Thr Asp Val Ser Leu Lys Ile Thr Glu Ser Asp Leu Ser | | | |

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|---|------|------|------|------|
| 1940 | 1945 | 1950 | 1955 | |
| cag ctg acc gcc agc atc cgt gcc ccc tcg ggc aac gag gag ccc tgc | | | | 6022 |
| Gln Leu Thr Ala Ser Ile Arg Ala Pro Ser Gly Asn Glu Glu Pro Cys | | | | |
| | 1960 | 1965 | 1970 | |
| ctg ctg aag cgc ctg ccc aac cgg cac att ggg atc tcc ttc acc ccc | | | | 6070 |
| Leu Leu Lys Arg Leu Pro Asn Arg His Ile Gly Ile Ser Phe Thr Pro | | | | |
| | 1975 | 1980 | 1985 | |
| aag gag gtc ggg gag cac gtg gtg agc gtg cgc aag agt ggc aag cat | | | | 6118 |
| Lys Glu Val Gly Glu His Val Val Ser Val Arg Lys Ser Gly Lys His | | | | |
| | 1990 | 1995 | 2000 | |
| gtc acc aac agc ccc ttc aag atc ctg gtg ggg cca tct gag atc ggg | | | | 6166 |
| Val Thr Asn Ser Pro Phe Lys Ile Leu Val Gly Pro Ser Glu Ile Gly | | | | |
| | 2005 | 2010 | 2015 | |
| gac gcc agc aag gtg cgg gtc tgg ggc aag ggg ctt tcc gag gga cac | | | | 6214 |
| Asp Ala Ser Lys Val Arg Val Trp Gly Lys Gly Leu Ser Glu Gly His | | | | |
| | 2020 | 2025 | 2030 | 2035 |
| aca ttc cag gtg gca gag ttc atc gtg gac act cgc aat gca ggt tat | | | | 6262 |
| Thr Phe Gln Val Ala Glu Phe Ile Val Asp Thr Arg Asn Ala Gly Tyr | | | | |
| | 2040 | 2045 | 2050 | |
| ggg ggc ttg ggg ctg agt att gaa ggc cca agc aag gtg gac atc aac | | | | 6310 |
| Gly Gly Leu Gly Leu Ser Ile Glu Gly Pro Ser Lys Val Asp Ile Asn | | | | |
| | 2055 | 2060 | 2065 | |
| tgt gag gac atg gag gac ggg aca tgc aaa gtc acc tac tgc ccc acc | | | | 6358 |
| Cys Glu Asp Met Glu Asp Gly Thr Cys Lys Val Thr Tyr Cys Pro Thr | | | | |

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| 2070 | 2075 | 2080 | |
|---|------|------|------|
| gag ccc ggc acc tac atc atc aac atc aag ttt gct gac aag cac gtg | | | 6406 |
| Glu Pro Gly Thr Tyr Ile Ile Asn Ile Lys Phe Ala Asp Lys His Val | | | |
| 2085 | 2090 | 2095 | |
| cct gga agc ccc ttc act gtg aag gtg acc ggc gag ggc cgc atg aag | | | 6454 |
| Pro Gly Ser Pro Phe Thr Val Lys Val Thr Gly Glu Gly Arg Met Lys | | | |
| 2100 | 2105 | 2110 | 2115 |
| gag agc atc acc cgg cgg aga cag gca cct tcc atc gcc acc atc ggc | | | 6502 |
| Glu Ser Ile Thr Arg Arg Arg Gln Ala Pro Ser Ile Ala Thr Ile Gly | | | |
| | 2120 | 2125 | 2130 |
| agc acc tgt gac ctc aac ctc aag atc cca gga aac tgg ttc cag atg | | | 6550 |
| Ser Thr Cys Asp Leu Asn Leu Lys Ile Pro Gly Asn Trp Phe Gln Met | | | |
| | 2135 | 2140 | 2145 |
| gtg tct gcc cag gag cgc ctg aca cgc acc ttc aca cgc agc agc cac | | | 6598 |
| Val Ser Ala Gln Glu Arg Leu Thr Arg Thr Phe Thr Arg Ser Ser His | | | |
| | 2150 | 2155 | 2160 |
| acc tac acc cgc acg gag cgc acg gag atc agc aag acg cgg ggc ggg | | | 6646 |
| Thr Tyr Thr Arg Thr Glu Arg Thr Glu Ile Ser Lys Thr Arg Gly Gly | | | |
| | 2165 | 2170 | 2175 |
| gag aca aag ccc gag gtg cgg gtg gag gag tcc acc cag gtc ggc ggg | | | 6694 |
| Glu Thr Lys Pro Glu Val Arg Val Glu Glu Ser Thr Gln Val Gly Gly | | | |
| | 2180 | 2185 | 2190 |
| gac ccc ttc cct gct gtg ttt ggg gac ttc ctg ggc cgg gag cgc ctg | | | 6742 |
| Asp Pro Phe Pro Ala Val Phe Gly Asp Phe Leu Gly Arg Glu Arg Leu | | | |

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| | | | |
|---|------|------|------|
| 2200 | 2205 | 2210 | |
| gga tcc ttc ggc agc atc acc cgg cag cag gag ggt gag gcc agc tct | | | 6790 |
| Gly Ser Phe Gly Ser Ile Thr Arg Gln Gln Glu Gly Glu Ala Ser Ser | | | |
| 2215 | 2220 | 2225 | |
| cag gac atg act gca cag gtg acc agc cca tcg ggc aag gtg gaa gcc | | | 6838 |
| Gln Asp Met Thr Ala Gln Val Thr Ser Pro Ser Gly Lys Val Glu Ala | | | |
| 2230 | 2235 | 2240 | |
| gca gag atc gtc gag ggc gag gac agc gcc tac agc gtc cgc ttt gtg | | | 6886 |
| Ala Glu Ile Val Glu Gly Glu Asp Ser Ala Tyr Ser Val Arg Phe Val | | | |
| 2245 | 2250 | 2255 | |
| ccc cag gaa atg ggg ccc cat acg gtc gct gtc aag tac cgt ggc cag | | | 6934 |
| Pro Gln Glu Met Gly Pro His Thr Val Ala Val Lys Tyr Arg Gly Gln | | | |
| 2260 | 2265 | 2270 | 2275 |
| cac gtg ccc ggc agc ccc ttt cag ttc act gtg ggg ccg ctg ggt gaa | | | 6982 |
| His Val Pro Gly Ser Pro Phe Gln Phe Thr Val Gly Pro Leu Gly Glu | | | |
| 2280 | 2285 | 2290 | |
| ggt ggt gcc cac aag gtg cgg gcc gga cga gca ggg ctg gag cga ggt | | | 7030 |
| Gly Gly Ala His Lys Val Arg Ala Gly Arg Ala Gly Leu Glu Arg Gly | | | |
| 2295 | 2300 | 2305 | |
| gtg gcc ggc gtg cca gcc gag ttc agc atc tgg acc cgg gag gct ggc | | | 7078 |
| Val Ala Gly Val Pro Ala Glu Phe Ser Ile Trp Thr Arg Glu Ala Gly | | | |
| 2310 | 2315 | 2320 | |
| gct ggg ggc ctg tcc att gct gtg gag ggt cct agc aaa gcg gag att | | | 7126 |
| Ala Gly Gly Leu Ser Ile Ala Val Glu Gly Pro Ser Lys Ala Glu Ile | | | |

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|---|------|------|------|
| 2325 | 2330 | 2335 | |
| gca ttt gag gat cgc aaa gat ggc tcc tgc ggc gtc tcc tat gtc gtc | | | 7174 |
| Ala Phe Glu Asp Arg Lys Asp Gly Ser Cys Gly Val Ser Tyr Val Val | | | |
| 2340 | 2345 | 2350 | 2355 |
| cag gaa cca ggt gac tat gag gtc tcc atc aag ttc aat gat gag cac | | | 7222 |
| Gln Glu Pro Gly Asp Tyr Glu Val Ser Ile Lys Phe Asn Asp Glu His | | | |
| | 2360 | 2365 | 2370 |
| atc cca gac agc ccc ttt gtg gtg cct gtg gcc tcc ctc tcg gat gac | | | 7270 |
| Ile Pro Asp Ser Pro Phe Val Val Pro Val Ala Ser Leu Ser Asp Asp | | | |
| | 2375 | 2380 | 2385 |
| gct cgc cgt ctc act gtc acc agc ctc cag gag acg ggg ctc aag gtg | | | 7318 |
| Ala Arg Arg Leu Thr Val Thr Ser Leu Gln Glu Thr Gly Leu Lys Val | | | |
| | 2390 | 2395 | 2400 |
| aac cag cca gcg tcc ttt gcc gtg cag ctg aac ggt gcc cgg ggc gtg | | | 7366 |
| Asn Gln Pro Ala Ser Phe Ala Val Gln Leu Asn Gly Ala Arg Gly Val | | | |
| | 2405 | 2410 | 2415 |
| att gat gcc cgg gtg cac aca ccc tcg ggg gct gtg gag gag tgc tac | | | 7414 |
| Ile Asp Ala Arg Val His Thr Pro Ser Gly Ala Val Glu Glu Cys Tyr | | | |
| 2420 | 2425 | 2430 | 2435 |
| gtc tct gag ctg gac agt gac aag cac acc atc cgc ttc atc ccc cac | | | 7462 |
| Val Ser Glu Leu Asp Ser Asp Lys His Thr Ile Arg Phe Ile Pro His | | | |
| | 2440 | 2445 | 2450 |
| gag aat ggc gtc cac tcc atc gat gtc aag ttc aac ggt gcc cac atc | | | 7510 |
| Glu Asn Gly Val His Ser Ile Asp Val Lys Phe Asn Gly Ala His Ile | | | |

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| | | | |
|---|------|------|------|
| 2455 | 2460 | 2465 | |
| cct gga agt ccc ttc aag atc cgc gtt ggg gag cag agc cag gct ggg | | | 7558 |
| Pro Gly Ser Pro Phe Lys Ile Arg Val Gly Glu Gln Ser Gln Ala Gly | | | |
| 2470 | 2475 | 2480 | |
| gac cca ggc ttg gtg tca gcc tac ggt cct ggg ctc gag gga ggc act | | | 7606 |
| Asp Pro Gly Leu Val Ser Ala Tyr Gly Pro Gly Leu Glu Gly Gly Thr | | | |
| 2485 | 2490 | 2495 | |
| acc ggt gtg tca tca gag ttc atc gtg aac acc ctg aat gcc ggc tcg | | | 7654 |
| Thr Gly Val Ser Ser Glu Phe Ile Val Asn Thr Leu Asn Ala Gly Ser | | | |
| 2500 | 2505 | 2510 | 2515 |
| ggg gcc ttg tct gtc acc att gat ggc ccc tcc aag gtg cag ctg gac | | | 7702 |
| Gly Ala Leu Ser Val Thr Ile Asp Gly Pro Ser Lys Val Gln Leu Asp | | | |
| 2520 | 2525 | 2530 | |
| tgt cgg gag tgt cct gag ggc cat gtg gtc act tat act ccc atg gcc | | | 7750 |
| Cys Arg Glu Cys Pro Glu Gly His Val Val Thr Tyr Thr Pro Met Ala | | | |
| 2535 | 2540 | 2545 | |
| cct ggc aac tac ctc att gcc atc aag tac ggt ggc ccc cag cac atc | | | 7798 |
| Pro Gly Asn Tyr Leu Ile Ala Ile Lys Tyr Gly Gly Pro Gln His Ile | | | |
| 2550 | 2555 | 2560 | |
| gtg ggc agc ccc ttc aag gcc aag gtc act ggt ccg agg ctg tcc gga | | | 7846 |
| Val Gly Ser Pro Phe Lys Ala Lys Val Thr Gly Pro Arg Leu Ser Gly | | | |
| 2565 | 2570 | 2575 | |
| ggc cac agc ctt cac gaa aca tcc acg gtt ctg gtg gag act gtg acc | | | 7894 |
| Gly His Ser Leu His Glu Thr Ser Thr Val Leu Val Glu Thr Val Thr | | | |

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| | | | | |
|--|------|------|------|------|
| 2580 | 2585 | 2590 | 2595 | |
| aag tcc tcc tca agc cgg ggc tcc agc tac agc tcc atc ccc aag ttc | | | | 7942 |
| Lys Ser Ser Ser Ser Arg Gly Ser Ser Tyr Ser Ser Ile Pro Lys Phe | | | | |
| | 2600 | 2605 | 2610 | |
| tcc tca gat gcc agc aag gtg gtg act cgg ggc cct ggg ctg tcc cag | | | | 7990 |
| Ser Ser Asp Ala Ser Lys Val Val Thr Arg Gly Pro Gly Leu Ser Gln | | | | |
| | 2615 | 2620 | 2625 | |
| gcc ttc gtg ggc cag aag aac tcc ttc acc gtg gac tgc agc aaa gca | | | | 8038 |
| Ala Phe Val Gly Gln Lys Asn Ser Phe Thr Val Asp Cys Ser Lys Ala | | | | |
| | 2630 | 2635 | 2640 | |
| ggc acc aac atg atg atg gtg ggc gtg cac ggc ccc aag acc ccc tgt | | | | 8086 |
| Gly Thr Asn Met Met Met Val Gly Val His Gly Pro Lys Thr Pro Cys | | | | |
| | 2645 | 2650 | 2655 | |
| gag gag gtg tac gtg aag cac atg ggg aac cgg gtg tac aat gtc acc | | | | 8134 |
| Glu Glu Val Tyr Val Lys His Met Gly Asn Arg Val Tyr Asn Val Thr | | | | |
| 2660 | 2665 | 2670 | 2675 | |
| tac act gtc aag gag aaa ggg gac tac atc ctc att gtc aag tgg ggt | | | | 8182 |
| Tyr Thr Val Lys Glu Lys Gly Asp Tyr Ile Leu Ile Val Lys Trp Gly | | | | |
| | 2680 | 2685 | 2690 | |
| gac gaa agt gtc cct gga agc ccc ttc aaa gtc aag gtc cct | | | | 8224 |
| Asp Glu Ser Val Pro Gly Ser Pro Phe Lys Val Lys Val Pro | | | | |
| | 2695 | 2700 | 2705 | |
| tgaatcccaa aagtgccctcc ccagcctcag cccccacctc cagccacaca cacattacac | | | | 8284 |
| acacacacac acacacacaa atgtgccaca cccagacacg cacagaatca gacactacaa | | | | 8344 |

PH-1064PCT-US seq.TXT

acacctgcct tgggggtgaa gtgaaggccc agcctcccca cccaccgcg cccaggggt 8404
tggaggacct tgtctgtgtc agacagtgtc cctccctgga atgtgacatg aggccgactg 8464
gggccaggct caggggcaga ggctgggaca caaggggctg gcgagggctg cgaggccagg 8524
gaagccctga gtttctggcg gggctgagca gtgggggagc attgtgttgt ggggtgtctgt 8584
gtgtgaggtc accctcaaac tgcaccgccg gccagatacc ctctgaccc cgaggacttg 8644
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atgtgcactc cacccaagcc aggctcccag ggggcctgat ttctctctca ctgtctcttt 8824
ttttaaaatg gttgcacggc tctgccccat ggggggcctt ttttacacac tgcgaggccc 8884
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aactccaaat aaagtgcgcc tgtcgcc 8971

<210> 44

<211> 2705

<212> PRT

<213> Homo sapiens

<400> 44

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Pro | Ser | Thr | Glu | Lys | Asp | Leu | Ala | Glu | Asp | Ala | Pro | Trp | Lys | Lys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ile | Gln | Gln | Asn | Thr | Phe | Thr | Arg | Trp | Cys | Asn | Glu | His | Leu | Lys | Cys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Val | Gly | Lys | Arg | Leu | Thr | Asp | Leu | Gln | Arg | Asp | Leu | Ser | Asp | Gly | Leu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Arg | Leu | Ile | Ala | Leu | Leu | Glu | Val | Leu | Ser | Gln | Lys | Arg | Met | Tyr | Arg |
| | 50 | | | | | 55 | | | | | | 60 | | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Phe | His | Pro | Arg | Pro | Asn | Phe | Arg | Gln | Met | Lys | Leu | Glu | Asn | Val |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ser | Val | Ala | Leu | Glu | Phe | Leu | Glu | Arg | Glu | His | Ile | Lys | Leu | Val | Ser |
| | | | | | 85 | | | | | 90 | | | | | 95 |
| Ile | Asp | Ser | Lys | Ala | Ile | Val | Asp | Gly | Asn | Leu | Lys | Leu | Ile | Leu | Gly |
| | | | | | 100 | | | | | 105 | | | | | 110 |
| Leu | Ile | Trp | Thr | Leu | Ile | Leu | His | Tyr | Ser | Ile | Ser | Met | Pro | Met | Trp |
| | | | | | 115 | | | | | 120 | | | | | 125 |
| Glu | Asp | Glu | Asp | Asp | Glu | Asp | Ala | Arg | Lys | Gln | Thr | Pro | Lys | Gln | Arg |
| | | | | | 130 | | | | | 135 | | | | | 140 |
| Leu | Leu | Gly | Trp | Ile | Gln | Asn | Lys | Val | Pro | Gln | Leu | Pro | Ile | Thr | Asn |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Phe | Asn | Arg | Asp | Trp | Gln | Asp | Gly | Lys | Ala | Leu | Gly | Ala | Leu | Val | Asp |
| | | | | | 165 | | | | | 170 | | | | | 175 |
| Asn | Cys | Ala | Pro | Gly | Leu | Cys | Pro | Asp | Trp | Glu | Ala | Trp | Asp | Pro | Asn |
| | | | | | 180 | | | | | 185 | | | | | 190 |
| Gln | Pro | Val | Glu | Asn | Ser | Arg | Glu | Ala | Met | Gln | Gln | Ala | Asp | Asp | Trp |
| | | | | | 195 | | | | | 200 | | | | | 205 |
| Leu | Gly | Val | Pro | Gln | Val | Ile | Ala | Pro | Glu | Glu | Ile | Val | Asp | Pro | Asn |
| | | | | | 210 | | | | | 215 | | | | | 220 |
| Val | Asp | Glu | His | Ser | Val | Met | Thr | Tyr | Leu | Ser | Gln | Phe | Pro | Lys | Ala |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Leu | Lys | Pro | Gly | Ala | Pro | Val | Arg | Ser | Lys | Gln | Leu | Asn | Pro | Lys |
| | | | | | 245 | | | | | 250 | | | | | 255 |

PH-1064PCT-US seq.TXT

| | |
|---|---|
| Lys Ala Ile Ala Tyr Gly | Pro Gly Ile Glu Pro Gln Gly Asn Thr Val |
| 260 | 265 270 |
| Leu Gln Pro Ala His Phe Thr Val Gln Thr Val Asp Ala Gly Val Gly | |
| 275 | 280 285 |
| Glu Val Leu Val Tyr Ile Glu Asp Pro Glu Gly His Thr Glu Glu Ala | |
| 290 | 295 300 |
| Lys Val Val Pro Asn Asn Asp Lys Asp Arg Thr Tyr Ala Val Ser Tyr | |
| 305 | 310 315 320 |
| Val Pro Lys Val Ala Gly Leu His Lys Val Thr Val Leu Phe Ala Gly | |
| 325 | 330 335 |
| Gln Asn Ile Glu Arg Ser Pro Phe Glu Val Asn Val Gly Met Ala Leu | |
| 340 | 345 350 |
| Gly Asp Ala Asn Lys Val Ser Ala Arg Gly Pro Gly Leu Glu Pro Val | |
| 355 | 360 365 |
| Gly Asn Val Ala Asn Lys Pro Thr Tyr Phe Asp Ile Tyr Thr Ala Gly | |
| 370 | 375 380 |
| Ala Gly Thr Gly Asp Val Ala Val Val Ile Val Asp Pro Gln Gly Arg | |
| 385 | 390 395 400 |
| Arg Asp Thr Val Glu Val Ala Leu Glu Asp Lys Gly Asp Ser Thr Phe | |
| 405 | 410 415 |
| Arg Cys Thr Tyr Arg Pro Ala Met Glu Gly Pro His Thr Val His Val | |
| 420 | 425 430 |
| Ala Phe Ala Gly Ala Pro Ile Thr Arg Ser Pro Phe Pro Val His Val | |
| 435 | 440 445 |

PH-1064PCT-US seq.TXT

Ser Glu Ala Cys Asn Pro Asn Ala Cys Arg Ala Ser Gly Arg Gly Leu
450 455 460
Gln Pro Lys Gly Val Arg Val Lys Glu Val Ala Asp Phe Lys Val Phe
465 470 475 480
Thr Lys Gly Ala Gly Ser Gly Glu Leu Lys Val Thr Val Lys Gly Pro
485 490 495
Lys Gly Thr Glu Glu Pro Val Lys Val Arg Glu Ala Gly Asp Gly Val
500 505 510
Phe Glu Cys Glu Tyr Tyr Pro Val Val Pro Gly Lys Tyr Val Val Thr
515 520 525
Ile Thr Trp Gly Gly Tyr Ala Ile Pro Arg Ser Pro Phe Glu Val Gln
530 535 540
Val Ser Pro Glu Ala Gly Val Gln Lys Val Arg Ala Trp Gly Pro Gly
545 550 555 560
Leu Glu Thr Gly Gln Val Gly Lys Ser Ala Asp Phe Val Val Glu Ala
565 570 575
Ile Gly Thr Glu Val Gly Thr Leu Gly Phe Ser Ile Glu Gly Pro Ser
580 585 590
Gln Ala Lys Ile Glu Cys Asp Asp Lys Gly Asp Gly Ser Cys Asp Val
595 600 605
Arg Tyr Trp Pro Thr Glu Pro Gly Glu Tyr Ala Val His Val Ile Cys
610 615 620
Asp Asp Glu Asp Ile Arg Asp Ser Pro Phe Ile Ala His Ile Leu Pro
625 630 635 640

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Pro | Pro | Asp | Cys | Phe | Pro | Asp | Lys | Val | Lys | Ala | Phe | Gly | Pro | Gly |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Leu | Glu | Pro | Thr | Gly | Cys | Ile | Val | Asp | Lys | Pro | Ala | Glu | Phe | Thr | Ile |
| | | | | 660 | | | | | 665 | | | | | 670 | |
| Asp | Ala | Arg | Ala | Ala | Gly | Lys | Gly | Asp | Leu | Lys | Leu | Tyr | Ala | Gln | Asp |
| | | | | 675 | | | | | 680 | | | | | 685 | |
| Ala | Asp | Gly | Cys | Pro | Ile | Asp | Ile | Lys | Val | Ile | Pro | Asn | Gly | Asn | Gly |
| | | | | 690 | | | | | 695 | | | | | 700 | |
| Thr | Phe | Arg | Cys | Ser | Tyr | Val | Pro | Thr | Lys | Pro | Ile | Lys | His | Thr | Ile |
| 705 | | | | | | 710 | | | | | 715 | | | | 720 |
| Ile | Ile | Ser | Trp | Gly | Gly | Val | Asn | Val | Pro | Lys | Ser | Pro | Phe | Arg | Val |
| | | | | 725 | | | | | | 730 | | | | 735 | |
| Asn | Val | Gly | Glu | Gly | Ser | His | Pro | Glu | Arg | Val | Lys | Val | Tyr | Gly | Pro |
| | | | | 740 | | | | | | 745 | | | | 750 | |
| Gly | Val | Glu | Lys | Thr | Gly | Leu | Lys | Ala | Asn | Glu | Pro | Thr | Tyr | Phe | Thr |
| | | | | 755 | | | | | | 760 | | | | 765 | |
| Val | Asp | Cys | Ser | Glu | Ala | Gly | Gln | Gly | Asp | Val | Ser | Ile | Gly | Ile | Lys |
| | | | | 770 | | | | | 775 | | | | | 780 | |
| Cys | Ala | Pro | Gly | Val | Val | Gly | Pro | Ala | Glu | Ala | Asp | Ile | Asp | Phe | Asp |
| 785 | | | | | | 790 | | | | | 795 | | | | 800 |
| Ile | Ile | Lys | Asn | Asp | Asn | Asp | Thr | Phe | Thr | Val | Lys | Tyr | Thr | Pro | Pro |
| | | | | 805 | | | | | | 810 | | | | 815 | |
| Gly | Ala | Gly | Arg | Tyr | Thr | Ile | Met | Val | Leu | Phe | Ala | Asn | Gln | Glu | Ile |
| | | | | 820 | | | | | | 825 | | | | 830 | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|------|-----|-----|-----|------|------|-----|-----|-----|-----|------|-----|-----|-----|
| Pro | Ala | Ser | Pro | Phe | His | Ile | Lys | Val | Asp | Pro | Ser | His | Asp | Ala | Ser |
| | | 835 | | | | | 840 | | | | | 845 | | | |
| Lys | Val | Lys | Ala | Glu | Gly | Pro | Gly | Leu | Asn | Arg | Thr | Gly | Val | Glu | Val |
| | | 850 | | | | 855 | | | | | | 860 | | | |
| Gly | Lys | Pro | Thr | His | Phe | Thr | Val | Leu | Thr | Lys | Gly | Ala | Gly | Lys | Ala |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 |
| Lys | Leu | Asp | Val | Gln | Phe | Ala | Gly | Thr | Ala | Lys | Gly | Glu | Val | Val | Arg |
| | | | | 885 | | | | | 890 | | | | | 895 | |
| Asp | Phe | Glu | Ile | Ile | Asp | Asn | His | Asp | Tyr | Ser | Tyr | Thr | Val | Lys | Tyr |
| | | 900 | | | | | | 905 | | | | | 910 | | |
| Thr | Ala | Val | Gln | Gln | Gly | Asn | Met | Ala | Val | Thr | Val | Thr | Tyr | Gly | Gly |
| | | 915 | | | | 920 | | | | | | 925 | | | |
| Asp | Pro | Val | Pro | Lys | Ser | Pro | Phe | Val | Val | Asn | Val | Ala | Pro | Pro | Leu |
| | | 930 | | | | 935 | | | | | | 940 | | | |
| Asp | Leu | Ser | Lys | Ile | Lys | Val | Gln | Gly | Leu | Asn | Ser | Lys | Val | Ala | Val |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 |
| Gly | Gln | Glu | Gln | Ala | Phe | Ser | Val | Asn | Thr | Arg | Gly | Ala | Gly | Gly | Gln |
| | | | | 965 | | | | | 970 | | | | | 975 | |
| Gly | Gln | Leu | Asp | Val | Arg | Met | Thr | Ser | Pro | Ser | Arg | Arg | Pro | Ile | Pro |
| | | 980 | | | | | | 985 | | | | | 990 | | |
| Cys | Lys | Leu | Glu | Pro | Gly | Gly | Gly | Ala | Glu | Ala | Gln | Ala | Val | Arg | Tyr |
| | | 995 | | | | | 1000 | | | | | 1005 | | | |
| Met | Pro | Pro | Glu | Glu | Gly | Pro | Tyr | Lys | Val | Asp | Ile | Thr | Tyr | Asp | Gly |
| | | 1010 | | | | 1015 | | | | | | 1020 | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| His Pro Val Pro Gly Ser Pro Phe Ala Val Glu Gly Val Leu Pro Pro | | | |
| 1025 | 1030 | 1035 | 1040 |
| Asp Pro Ser Lys Val Cys Ala Tyr Gly Pro Gly Leu Lys Gly Gly Leu | | | |
| | 1045 | 1050 | 1055 |
| Val Gly Thr Pro Ala Pro Phe Ser Ile Asp Thr Lys Gly Ala Gly Thr | | | |
| | 1060 | 1065 | 1070 |
| Gly Gly Leu Gly Leu Thr Val Glu Gly Pro Cys Glu Ala Lys Ile Glu | | | |
| | 1075 | 1080 | 1085 |
| Cys Gln Asp Asn Gly Asp Gly Ser Cys Ala Val Ser Tyr Leu Pro Thr | | | |
| | 1090 | 1095 | 1100 |
| Glu Pro Gly Glu Tyr Thr Ile Asn Ile Leu Phe Ala Glu Ala His Ile | | | |
| 1105 | 1110 | 1115 | 1120 |
| Pro Gly Ser Pro Phe Lys Ala Thr Ile Arg Pro Val Phe Asp Pro Ser | | | |
| | 1125 | 1130 | 1135 |
| Lys Val Arg Ala Ser Gly Pro Gly Leu Glu Arg Gly Lys Val Gly Glu | | | |
| | 1140 | 1145 | 1150 |
| Ala Ala Thr Phe Thr Val Asp Cys Ser Glu Ala Gly Glu Ala Glu Leu | | | |
| | 1155 | 1160 | 1165 |
| Thr Ile Glu Ile Leu Ser Asp Ala Gly Val Lys Ala Glu Val Leu Ile | | | |
| | 1170 | 1175 | 1180 |
| His Asn Asn Ala Asp Gly Thr Tyr His Ile Thr Tyr Ser Pro Ala Phe | | | |
| 1185 | 1190 | 1195 | 1200 |
| Pro Gly Thr Tyr Thr Ile Thr Ile Lys Tyr Gly Gly His Pro Val Pro | | | |
| | 1205 | 1210 | 1215 |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Lys Phe Pro Thr Arg Val His Val Gln Pro Ala Val Asp Thr Ser Gly | | | |
| 1220 | 1225 | 1230 | |
| Val Lys Val Ser Gly Pro Gly Val Glu Pro His Gly Val Leu Arg Glu | | | |
| 1235 | 1240 | 1245 | |
| Val Thr Thr Glu Phe Thr Val Asp Ala Arg Ser Leu Thr Ala Thr Gly | | | |
| 1250 | 1255 | 1260 | |
| Gly Asn His Val Thr Ala Arg Val Leu Asn Pro Ser Gly Ala Lys Thr | | | |
| 1265 | 1270 | 1275 | 1280 |
| Asp Thr Tyr Val Thr Asp Asn Gly Asp Gly Thr Tyr Arg Val Gln Tyr | | | |
| 1285 | 1290 | 1295 | |
| Thr Ala Tyr Glu Glu Gly Val His Leu Val Glu Val Leu Tyr Asp Glu | | | |
| 1300 | 1305 | 1310 | |
| Val Ala Val Pro Lys Ser Pro Phe Arg Val Gly Val Thr Glu Gly Cys | | | |
| 1315 | 1320 | 1325 | |
| Asp Pro Thr Arg Val Arg Ala Phe Gly Pro Gly Leu Glu Gly Gly Leu | | | |
| 1330 | 1335 | 1340 | |
| Val Asn Lys Ala Asn Arg Phe Thr Val Glu Thr Arg Gly Ala Gly Thr | | | |
| 1345 | 1350 | 1355 | 1360 |
| Gly Gly Leu Gly Leu Ala Ile Glu Gly Pro Ser Glu Ala Lys Met Ser | | | |
| 1365 | 1370 | 1375 | |
| Cys Lys Asp Asn Lys Asp Gly Ser Cys Thr Val Glu Tyr Ile Pro Phe | | | |
| 1380 | 1385 | 1390 | |
| Thr Pro Gly Asp Tyr Asp Val Asn Ile Thr Phe Gly Gly Arg Pro Ile | | | |
| 1395 | 1400 | 1405 | |

PH-1064PCT-US seq.TXT

Pro Gly Ser Pro Phe Arg Val Pro Val Lys Asp Val Val Asp Pro Gly
1410 1415 1420
Lys Val Lys Cys Ser Gly Pro Gly Leu Gly Ala Gly Val Arg Ala Arg
1425 1430 1435 1440
Val Pro Gln Thr Phe Thr Val Asp Cys Ser Gln Ala Gly Arg Ala Pro
1445 1450 1455
Leu Gln Val Ala Val Leu Gly Pro Thr Gly Val Ala Glu Pro Val Glu
1460 1465 1470
Val Arg Asp Asn Gly Asp Gly Thr His Thr Val His Tyr Thr Pro Ala
1475 1480 1485
Thr Asp Gly Pro Tyr Thr Val Ala Val Lys Tyr Ala Asp Gln Glu Val
1490 1495 1500
Pro Arg Ser Pro Phe Lys Ile Lys Val Leu Pro Ala His Asp Ala Ser
1505 1510 1515 1520
Lys Val Arg Ala Ser Gly Pro Gly Leu Asn Ala Ser Gly Ile Pro Ala
1525 1530 1535
Ser Leu Pro Val Glu Phe Thr Ile Asp Ala Arg Asp Ala Gly Glu Gly
1540 1545 1550
Leu Leu Thr Val Gln Ile Leu Gly Pro Glu Gly Lys Pro Lys Lys Ala
1555 1560 1565
Asn Ile Arg Asp Asn Gly Asp Gly Thr Tyr Ala Val Ser Tyr Leu Pro
1570 1575 1580
Asp Met Ser Gly Arg Tyr Thr Ile Thr Ile Lys Tyr Gly Gly Asp Glu
1585 1590 1595 1600

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Ile Pro Tyr Ser Pro Phe Arg Ile His Ala Leu Pro Thr Gly Asp Ala | | | |
| | 1605 | 1610 | 1615 |
| Ser Lys Cys Leu Val Thr Val Ser Ile Gly Gly His Gly Leu Gly Ala | | | |
| | 1620 | 1625 | 1630 |
| Cys Leu Gly Pro Arg Ile Gln Ile Gly Gln Glu Thr Val Ile Thr Val | | | |
| | 1635 | 1640 | 1645 |
| Asp Ala Lys Ala Ala Gly Glu Gly Lys Val Thr Cys Thr Val Ser Thr | | | |
| | 1650 | 1655 | 1660 |
| Pro Asp Gly Ala Glu Leu Asp Val Asp Val Val Glu Asn His Asp Gly | | | |
| | 1665 | 1670 | 1675 |
| Thr Phe Asp Ile Tyr Tyr Thr Ala Pro Glu Pro Gly Lys Tyr Val Ile | | | |
| | 1685 | 1690 | 1695 |
| Thr Ile Arg Phe Gly Gly Glu His Ile Pro Asn Ser Pro Phe His Val | | | |
| | 1700 | 1705 | 1710 |
| Leu Ala Cys Asp Pro Leu Pro His Glu Glu Glu Pro Ser Glu Val Pro | | | |
| | 1715 | 1720 | 1725 |
| Gln Leu Arg Gln Pro Tyr Ala Pro Pro Arg Pro Gly Ala Arg Pro Thr | | | |
| | 1730 | 1735 | 1740 |
| His Trp Ala Thr Glu Glu Pro Val Val Pro Val Glu Pro Met Glu Ser | | | |
| | 1745 | 1750 | 1755 |
| Met Leu Arg Pro Phe Asn Leu Val Ile Pro Phe Ala Val Gln Lys Gly | | | |
| | 1765 | 1770 | 1775 |
| Glu Leu Thr Gly Glu Val Arg Met Pro Ser Gly Lys Thr Ala Arg Pro | | | |
| | 1780 | 1785 | 1790 |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Asn Ile Thr Asp Asn Lys Asp Gly Thr Ile Thr Val Arg Tyr Ala Pro | | | |
| 1795 | 1800 | 1805 | |
| Thr Glu Lys Gly Leu His Gln Met Gly Ile Lys Tyr Asp Gly Asn His | | | |
| 1810 | 1815 | 1820 | |
| Ile Pro Gly Ser Pro Leu Gln Phe Tyr Val Asp Ala Ile Asn Ser Arg | | | |
| 1825 | 1830 | 1835 | 1840 |
| His Val Ser Ala Tyr Gly Pro Gly Leu Ser His Gly Met Val Asn Lys | | | |
| 1845 | 1850 | 1855 | |
| Pro Ala Thr Phe Thr Ile Val Thr Lys Asp Ala Gly Glu Gly Gly Leu | | | |
| 1860 | 1865 | 1870 | |
| Ser Leu Ala Val Glu Gly Pro Ser Lys Ala Glu Ile Thr Cys Lys Asp | | | |
| 1875 | 1880 | 1885 | |
| Asn Lys Asp Gly Thr Cys Thr Val Ser Tyr Leu Pro Thr Ala Pro Gly | | | |
| 1890 | 1895 | 1900 | |
| Asp Tyr Ser Ile Ile Val Arg Phe Asp Asp Lys His Ile Pro Gly Ser | | | |
| 1905 | 1910 | 1915 | 1920 |
| Pro Phe Thr Ala Lys Ile Thr Gly Asp Asp Ser Met Arg Thr Ser Gln | | | |
| 1925 | 1930 | 1935 | |
| Leu Asn Val Gly Thr Ser Thr Asp Val Ser Leu Lys Ile Thr Glu Ser | | | |
| 1940 | 1945 | 1950 | |
| Asp Leu Ser Gln Leu Thr Ala Ser Ile Arg Ala Pro Ser Gly Asn Glu | | | |
| 1955 | 1960 | 1965 | |
| Glu Pro Cys Leu Leu Lys Arg Leu Pro Asn Arg His Ile Gly Ile Ser | | | |
| 1970 | 1975 | 1980 | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Phe Thr Pro Lys Glu Val Gly Glu His Val Val Ser Val Arg Lys Ser | | | |
| 1985 | 1990 | 1995 | 2000 |
| Gly Lys His Val Thr Asn Ser Pro Phe Lys Ile Leu Val Gly Pro Ser | | | |
| | 2005 | 2010 | 2015 |
| Glu Ile Gly Asp Ala Ser Lys Val Arg Val Trp Gly Lys Gly Leu Ser | | | |
| | 2020 | 2025 | 2030 |
| Glu Gly His Thr Phe Gln Val Ala Glu Phe Ile Val Asp Thr Arg Asn | | | |
| | 2035 | 2040 | 2045 |
| Ala Gly Tyr Gly Gly Leu Gly Leu Ser Ile Glu Gly Pro Ser Lys Val | | | |
| | 2050 | 2055 | 2060 |
| Asp Ile Asn Cys Glu Asp Met Glu Asp Gly Thr Cys Lys Val Thr Tyr | | | |
| 2065 | 2070 | 2075 | 2080 |
| Cys Pro Thr Glu Pro Gly Thr Tyr Ile Ile Asn Ile Lys Phe Ala Asp | | | |
| | 2085 | 2090 | 2095 |
| Lys His Val Pro Gly Ser Pro Phe Thr Val Lys Val Thr Gly Glu Gly | | | |
| | 2100 | 2105 | 2110 |
| Arg Met Lys Glu Ser Ile Thr Arg Arg Arg Gln Ala Pro Ser Ile Ala | | | |
| | 2115 | 2120 | 2125 |
| Thr Ile Gly Ser Thr Cys Asp Leu Asn Leu Lys Ile Pro Gly Asn Trp | | | |
| | 2130 | 2135 | 2140 |
| Phe Gln Met Val Ser Ala Gln Glu Arg Leu Thr Arg Thr Phe Thr Arg | | | |
| 2145 | 2150 | 2155 | 2160 |
| Ser Ser His Thr Tyr Thr Arg Thr Glu Arg Thr Glu Ile Ser Lys Thr | | | |
| | 2165 | 2170 | 2175 |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Arg Gly Gly Glu Thr Lys Pro Glu Val Arg Val Glu Glu Ser Thr Gln | | | |
| 2180 | 2185 | 2190 | |
| Val Gly Gly Asp Pro Phe Pro Ala Val Phe Gly Asp Phe Leu Gly Arg | | | |
| 2195 | 2200 | 2205 | |
| Glu Arg Leu Gly Ser Phe Gly Ser Ile Thr Arg Gln Gln Glu Gly Glu | | | |
| 2210 | 2215 | 2220 | |
| Ala Ser Ser Gln Asp Met Thr Ala Gln Val Thr Ser Pro Ser Gly Lys | | | |
| 2225 | 2230 | 2235 | 2240 |
| Val Glu Ala Ala Glu Ile Val Glu Gly Glu Asp Ser Ala Tyr Ser Val | | | |
| 2245 | 2250 | 2255 | |
| Arg Phe Val Pro Gln Glu Met Gly Pro His Thr Val Ala Val Lys Tyr | | | |
| 2260 | 2265 | 2270 | |
| Arg Gly Gln His Val Pro Gly Ser Pro Phe Gln Phe Thr Val Gly Pro | | | |
| 2275 | 2280 | 2285 | |
| Leu Gly Glu Gly Gly Ala His Lys Val Arg Ala Gly Arg Ala Gly Leu | | | |
| 2290 | 2295 | 2300 | |
| Glu Arg Gly Val Ala Gly Val Pro Ala Glu Phe Ser Ile Trp Thr Arg | | | |
| 2305 | 2310 | 2315 | 2320 |
| Glu Ala Gly Ala Gly Gly Leu Ser Ile Ala Val Glu Gly Pro Ser Lys | | | |
| 2325 | 2330 | 2335 | |
| Ala Glu Ile Ala Phe Glu Asp Arg Lys Asp Gly Ser Cys Gly Val Ser | | | |
| 2340 | 2345 | 2350 | |
| Tyr Val Val Gln Glu Pro Gly Asp Tyr Glu Val Ser Ile Lys Phe Asn | | | |
| 2355 | 2360 | 2365 | |

PH-1064PCT-US seq.TXT

Asp Glu His Ile Pro Asp Ser Pro Phe Val Val Pro Val Ala Ser Leu
 2370 2375 2380
 Ser Asp Asp Ala Arg Arg Leu Thr Val Thr Ser Leu Gln Glu Thr Gly
 2385 2390 2395 2400
 Leu Lys Val Asn Gln Pro Ala Ser Phe Ala Val Gln Leu Asn Gly Ala
 2405 2410 2415
 Arg Gly Val Ile Asp Ala Arg Val His Thr Pro Ser Gly Ala Val Glu
 2420 2425 2430
 Glu Cys Tyr Val Ser Glu Leu Asp Ser Asp Lys His Thr Ile Arg Phe
 2435 2440 2445
 Ile Pro His Glu Asn Gly Val His Ser Ile Asp Val Lys Phe Asn Gly
 2450 2455 2460
 Ala His Ile Pro Gly Ser Pro Phe Lys Ile Arg Val Gly Glu Gln Ser
 2465 2470 2475 2480
 Gln Ala Gly Asp Pro Gly Leu Val Ser Ala Tyr Gly Pro Gly Leu Glu
 2485 2490 2495
 Gly Gly Thr Thr Gly Val Ser Ser Glu Phe Ile Val Asn Thr Leu Asn
 2500 2505 2510
 Ala Gly Ser Gly Ala Leu Ser Val Thr Ile Asp Gly Pro Ser Lys Val
 2515 2520 2525
 Gln Leu Asp Cys Arg Glu Cys Pro Glu Gly His Val Val Thr Tyr Thr
 2530 2535 2540
 Pro Met Ala Pro Gly Asn Tyr Leu Ile Ala Ile Lys Tyr Gly Gly Pro
 2545 2550 2555 2560

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Gln His Ile Val Gly Ser Pro Phe Lys Ala Lys Val Thr Gly Pro Arg | | | |
| | 2565 | 2570 | 2575 |
| Leu Ser Gly Gly His Ser Leu His Glu Thr Ser Thr Val Leu Val Glu | | | |
| | 2580 | 2585 | 2590 |
| Thr Val Thr Lys Ser Ser Ser Ser Arg Gly Ser Ser Tyr Ser Ser Ile | | | |
| | 2595 | 2600 | 2605 |
| Pro Lys Phe Ser Ser Asp Ala Ser Lys Val Val Thr Arg Gly Pro Gly | | | |
| | 2610 | 2615 | 2620 |
| Leu Ser Gln Ala Phe Val Gly Gln Lys Asn Ser Phe Thr Val Asp Cys | | | |
| 2625 | 2630 | 2635 | 2640 |
| Ser Lys Ala Gly Thr Asn Met Met Met Val Gly Val His Gly Pro Lys | | | |
| | 2645 | 2650 | 2655 |
| Thr Pro Cys Glu Glu Val Tyr Val Lys His Met Gly Asn Arg Val Tyr | | | |
| | 2660 | 2665 | 2670 |
| Asn Val Thr Tyr Thr Val Lys Glu Lys Gly Asp Tyr Ile Leu Ile Val | | | |
| | 2675 | 2680 | 2685 |
| Lys Trp Gly Asp Glu Ser Val Pro Gly Ser Pro Phe Lys Val Lys Val | | | |
| | 2690 | 2695 | 2700 |
| Pro | | | |
| 2705 | | | |

<210> 45

<211> 2016

<212> DNA

PH-1064PCT-US seq.TXT

<213> Homo sapiens

<220>

<221> CDS

<222> (210)..(1352)

<400> 45

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gaccccgctg cgcacggcct gtccgctgca caccagcttg ttggcgtctt cgtcgccgcg 180
ctcgccccgg gctactcctg cgcgccaca atg agc tcc cgc atc gcc agg gcg 233

Met Ser Ser Arg Ile Ala Arg Ala

1

5

ctc gcc tta gtc gtc acc ctt ctc cac ttg acc agg ctg gcg ctc tcc 281
Leu Ala Leu Val Val Thr Leu Leu His Leu Thr Arg Leu Ala Leu Ser

10

15

20

acc tgc ccc gct gcc tgc cac tgc ccc ctg gag gcg ccc aag tgc gcg 329
Thr Cys Pro Ala Ala Cys His Cys Pro Leu Glu Ala Pro Lys Cys Ala

25

30

35

40

ccg gga gtc ggg ctg gtc cgg gac ggc tgc ggc tgc tgt aag gtc tgc 377
Pro Gly Val Gly Leu Val Arg Asp Gly Cys Gly Cys Cys Lys Val Cys

45

50

55

gcc aag cag ctc aac gag gac tgc agc aaa acg cag ccc tgc gac cac 425
Ala Lys Gln Leu Asn Glu Asp Cys Ser Lys Thr Gln Pro Cys Asp His

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70

acc aag ggg ctg gaa tgc aac ttc ggc gcc agc tcc acc gct ctg aag 473

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Thr Lys Gly Leu Glu Cys Asn Phe Gly Ala Ser Ser Thr Ala Leu Lys
75 80 85
ggg atc tgc aga gct cag tca gag ggc aga ccc tgt gaa tat aac tcc 521
Gly Ile Cys Arg Ala Gln Ser Glu Gly Arg Pro Cys Glu Tyr Asn Ser
90 95 100
aga atc tac caa aac ggg gaa agt ttc cag ccc aac tgt aaa cat cag 569
Arg Ile Tyr Gln Asn Gly Glu Ser Phe Gln Pro Asn Cys Lys His Gln
105 110 115 120
tgc aca tgt att gat ggc gcc gtg ggc tgc att cct ctg tgt ccc caa 617
Cys Thr Cys Ile Asp Gly Ala Val Gly Cys Ile Pro Leu Cys Pro Gln
125 130 135
gaa cta tct ctc ccc aac ttg ggc tgt ccc aac cct cgg ctg gtc aaa 665
Glu Leu Ser Leu Pro Asn Leu Gly Cys Pro Asn Pro Arg Leu Val Lys
140 145 150
gtt acc ggg cag tgc tgc gag gag tgg gtc tgt gac gag gat agt atc 713
Val Thr Gly Gln Cys Cys Glu Glu Trp Val Cys Asp Glu Asp Ser Ile
155 160 165
aag gac ccc atg gag gac cag gac ggc ctc ctt ggc aag gag ctg gga 761
Lys Asp Pro Met Glu Asp Gln Asp Gly Leu Leu Gly Lys Glu Leu Gly
170 175 180
ttc gat gcc tcc gag gtg gag ttg acg aga aac aat gaa ttg att gca 809
Phe Asp Ala Ser Glu Val Glu Leu Thr Arg Asn Asn Glu Leu Ile Ala
185 190 195 200
gtt gga aaa ggc agc tca ctg aag cgg ctc cct gtt ttt gga atg gag 857

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| Val Gly Lys Gly Ser Ser Leu Lys Arg Leu Pro Val Phe Gly Met Glu | |
| 205 | 210 |
| 215 | |
| cct cgc atc cta tac aac cct tta caa ggc cag aaa tgt att gtt caa | 905 |
| Pro Arg Ile Leu Tyr Asn Pro Leu Gln Gly Gln Lys Cys Ile Val Gln | |
| 220 | 225 |
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| aca act tca tgg tcc cag tgc tca aag acc tgt gga act ggt atc tcc | 953 |
| Thr Thr Ser Trp Ser Gln Cys Ser Lys Thr Cys Gly Thr Gly Ile Ser | |
| 235 | 240 |
| 245 | |
| aca cga gtt acc aat gac aac cct gag tgc cgc ctt gtg aaa gaa acc | 1001 |
| Thr Arg Val Thr Asn Asp Asn Pro Glu Cys Arg Leu Val Lys Glu Thr | |
| 250 | 255 |
| 260 | |
| cgg att tgt gag gtg cgg cct tgt gga cag cca gtg tac agc agc ctg | 1049 |
| Arg Ile Cys Glu Val Arg Pro Cys Gly Gln Pro Val Tyr Ser Ser Leu | |
| 265 | 270 |
| 275 | 280 |
| aaa aag ggc aag aaa tgc agc aag acc aag aaa tcc ccc gaa cca gtc | 1097 |
| Lys Lys Gly Lys Lys Cys Ser Lys Thr Lys Lys Ser Pro Glu Pro Val | |
| 285 | 290 |
| 295 | |
| agg ttt act tac gct gga tgt ttg agt gtg aag aaa tac cgg ccc aag | 1145 |
| Arg Phe Thr Tyr Ala Gly Cys Leu Ser Val Lys Lys Tyr Arg Pro Lys | |
| 300 | 305 |
| 310 | |
| tac tgc ggt tcc tgc gtg gac ggc cga tgc tgc acg ccc cag ctg acc | 1193 |
| Tyr Cys Gly Ser Cys Val Asp Gly Arg Cys Cys Thr Pro Gln Leu Thr | |
| 315 | 320 |
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PH-1064PCT-US seq.TXT

Arg Thr Val Lys Met Arg Phe Arg Cys Glu Asp Gly Glu Thr Phe Ser

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Lys Asn Val Met Met Ile Gln Ser Cys Lys Cys Asn Tyr Asn Cys Pro

345

350

355

360

cat gcc aat gaa gca gcg ttt ccc ttc tac agg ctg ttc aat gac att 1337

His Ala Asn Glu Ala Ala Phe Pro Phe Tyr Arg Leu Phe Asn Asp Ile

365

370

375

cac aaa ttt agg gac taaatgctac ctgggtttcc agggcacacc tagacaaaca 1392

His Lys Phe Arg Asp

380

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gggactcatt gtagaaagga agccttgctc attcttgagg agcattaagg tatttcgaaa 1512

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tgtctgtgag aggcagctat ctgcactcta aactgcaaac agaaatcagg tgttttaaga 1872

ctgaatgttt tatttatcaa aatgtagctt ttggggaggg aggggaaatg taatactgga 1932

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<213> Homo sapiens

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30

Pro Leu Glu Ala Pro Lys Cys Ala Pro Gly Val Gly Leu Val Arg Asp

35

40

45

Gly Cys Gly Cys Cys Lys Val Cys Ala Lys Gln Leu Asn Glu Asp Cys

50

55

60

Ser Lys Thr Gln Pro Cys Asp His Thr Lys Gly Leu Glu Cys Asn Phe

65

70

75

80

Gly Ala Ser Ser Thr Ala Leu Lys Gly Ile Cys Arg Ala Gln Ser Glu

85

90

95

Gly Arg Pro Cys Glu Tyr Asn Ser Arg Ile Tyr Gln Asn Gly Glu Ser

100

105

110

Phe Gln Pro Asn Cys Lys His Gln Cys Thr Cys Ile Asp Gly Ala Val

115

120

125

Gly Cys Ile Pro Leu Cys Pro Gln Glu Leu Ser Leu Pro Asn Leu Gly

130

135

140

Cys Pro Asn Pro Arg Leu Val Lys Val Thr Gly Gln Cys Cys Glu Glu

145

150

155

160

Trp Val Cys Asp Glu Asp Ser Ile Lys Asp Pro Met Glu Asp Gln Asp

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| | | |
|---|-----|-----|
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| 180 | 185 | 190 |
| Thr Arg Asn Asn Glu Leu Ile Ala Val Gly Lys Gly Ser Ser Leu Lys | | |
| 195 | 200 | 205 |
| Arg Leu Pro Val Phe Gly Met Glu Pro Arg Ile Leu Tyr Asn Pro Leu | | |
| 210 | 215 | 220 |
| Gln Gly Gln Lys Cys Ile Val Gln Thr Thr Ser Trp Ser Gln Cys Ser | | |
| 225 | 230 | 235 |
| Lys Thr Cys Gly Thr Gly Ile Ser Thr Arg Val Thr Asn Asp Asn Pro | | |
| 245 | 250 | 255 |
| Glu Cys Arg Leu Val Lys Glu Thr Arg Ile Cys Glu Val Arg Pro Cys | | |
| 260 | 265 | 270 |
| Gly Gln Pro Val Tyr Ser Ser Leu Lys Lys Gly Lys Lys Cys Ser Lys | | |
| 275 | 280 | 285 |
| Thr Lys Lys Ser Pro Glu Pro Val Arg Phe Thr Tyr Ala Gly Cys Leu | | |
| 290 | 295 | 300 |
| Ser Val Lys Lys Tyr Arg Pro Lys Tyr Cys Gly Ser Cys Val Asp Gly | | |
| 305 | 310 | 315 |
| Arg Cys Cys Thr Pro Gln Leu Thr Arg Thr Val Lys Met Arg Phe Arg | | |
| 325 | 330 | 335 |
| Cys Glu Asp Gly Glu Thr Phe Ser Lys Asn Val Met Met Ile Gln Ser | | |
| 340 | 345 | 350 |
| Cys Lys Cys Asn Tyr Asn Cys Pro His Ala Asn Glu Ala Ala Phe Pro | | |

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<212> DNA

<213> Homo sapiens

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cgcgcgggcg tgagcccggg gcgagggctg tcttcccga gacccgaccc cggcagcgcg 180
gggcggccac ttctcctgtg cctccgcccc ctgctccact ccccgccgcc gccgcgcgg 239
atg cca agc acc agc ttt cca gtc cct tcc aag ttt cca ctt ggc cct 287
Met Pro Ser Thr Ser Phe Pro Val Pro Ser Lys Phe Pro Leu Gly Pro

1 5 10 15

gcg gct gcg gtc ttc ggg aga gga gaa act ttg ggg ccc gcg ccg cgc 335
Ala Ala Ala Val Phe Gly Arg Gly Glu Thr Leu Gly Pro Ala Pro Arg

20 25 30

gcc ggc ggc acc atg aag tca gcg gag gaa gaa cac tat ggc tat gca 383
Ala Gly Gly Thr Met Lys Ser Ala Glu Glu Glu His Tyr Gly Tyr Ala

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| Ser Ser Asn Val Ser Pro Ala Leu Pro Leu Pro Thr Ala His Ser Thr | | | |
| 50 | 55 | 60 | |
| ctg ccg gcc ccg tgc cac aac ctt cag acc tcc aca ccg ggc atc atc | | | 479 |
| Leu Pro Ala Pro Cys His Asn Leu Gln Thr Ser Thr Pro Gly Ile Ile | | | |
| 65 | 70 | 75 | 80 |
| ccg ccg gcg gat cac ccc tcg ggg tac gga gca gct ttg gac ggt ggg | | | 527 |
| Pro Pro Ala Asp His Pro Ser Gly Tyr Gly Ala Ala Leu Asp Gly Gly | | | |
| | 85 | 90 | 95 |
| ccc gcg ggc tac ttc ctc tcc tcc ggc cac acc agg cct gat ggg gcc | | | 575 |
| Pro Ala Gly Tyr Phe Leu Ser Ser Gly His Thr Arg Pro Asp Gly Ala | | | |
| | 100 | 105 | 110 |
| cct gcc ctg gag agt cct cgc atc gag ata acc tcg tgc ttg ggc ctg | | | 623 |
| Pro Ala Leu Glu Ser Pro Arg Ile Glu Ile Thr Ser Cys Leu Gly Leu | | | |
| | 115 | 120 | 125 |
| tac cac aac aat aac cag ttt ttc cac gat gtg gag gtg gaa gac gtc | | | 671 |
| Tyr His Asn Asn Asn Gln Phe Phe His Asp Val Glu Val Glu Asp Val | | | |
| | 130 | 135 | 140 |
| ctc cct agc tcc aaa cgg tcc ccc tcc acg gcc acg ctg agt ctg ccc | | | 719 |
| Leu Pro Ser Ser Lys Arg Ser Pro Ser Thr Ala Thr Leu Ser Leu Pro | | | |
| 145 | 150 | 155 | 160 |
| agc ctg gag gcc tac aga gac ccc tcg tgc ctg agc ccg gcc agc agc | | | 767 |
| Ser Leu Glu Ala Tyr Arg Asp Pro Ser Cys Leu Ser Pro Ala Ser Ser | | | |

PH-1064PCT-US seq.TXT

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|---|-----|-----|------|
| 165 | 170 | 175 | |
| ctg tcc tcc cgg agc tgc aac tca gag gcc tcc tcc tac gag tcc aac | | | 815 |
| Leu Ser Ser Arg Ser Cys Asn Ser Glu Ala Ser Ser Tyr Glu Ser Asn | | | |
| 180 | 185 | 190 | |
| tac tcg tac ccg tac gcg tcc ccc cag acg tcg cca tgg cag tct ccc | | | 863 |
| Tyr Ser Tyr Pro Tyr Ala Ser Pro Gln Thr Ser Pro Trp Gln Ser Pro | | | |
| 195 | 200 | 205 | |
| tgc gtg tct ccc aag acc acg gac ccc gag gag ggc ttt ccc cgc ggg | | | 911 |
| Cys Val Ser Pro Lys Thr Thr Asp Pro Glu Glu Gly Phe Pro Arg Gly | | | |
| 210 | 215 | 220 | |
| ctg ggg gcc tgc aca ctg ctg ggt tcc ccg cag cac tcc ccc tcc acc | | | 959 |
| Leu Gly Ala Cys Thr Leu Leu Gly Ser Pro Gln His Ser Pro Ser Thr | | | |
| 225 | 230 | 235 | 240 |
| tcg ccc cgc gcc agc gtc act gag gag agc tgg ctg ggt gcc cgc tcc | | | 1007 |
| Ser Pro Arg Ala Ser Val Thr Glu Glu Ser Trp Leu Gly Ala Arg Ser | | | |
| 245 | 250 | 255 | |
| tcc aga ccc gcg tcc cct tgc aac aag agg aag tac agc ctc aac ggc | | | 1055 |
| Ser Arg Pro Ala Ser Pro Cys Asn Lys Arg Lys Tyr Ser Leu Asn Gly | | | |
| 260 | 265 | 270 | |
| cgg cag ccg ccc tac tca ccc cac cac tcg ccc acg ccg tcc ccg cac | | | 1103 |
| Arg Gln Pro Pro Tyr Ser Pro His His Ser Pro Thr Pro Ser Pro His | | | |
| 275 | 280 | 285 | |
| ggc tcc ccg cgg gtc agc gtg acc gac gac tcg tgg ttg ggc aac acc | | | 1151 |
| Gly Ser Pro Arg Val Ser Val Thr Asp Asp Ser Trp Leu Gly Asn Thr | | | |

290

acc cag tac acc agc tcg gcc atc gtg gcc gcc atc aac gcg ctg acc 1199

Thr Gln Tyr Thr Ser Ser Ala Ile Val Ala Ala Ile Asn Ala Leu Thr

305 310 315 320

acc gac agc agc ctg gac ctg gga gat ggc gtc cct gtc aag tcc cgc 1247

Thr Asp Ser Ser Leu Asp Leu Gly Asp Gly Val Pro Val Lys Ser Arg

325 330 335

aag acc acc ctg gag cag ccg ccc tca gtg gcg ctc aag gtg gag ccc 1295

Lys Thr Thr Leu Glu Gln Pro Pro Ser Val Ala Leu Lys Val Glu Pro

340 345 350

gtc ggg gag gac ctg ggc agc ccc ccg ccc ccg gcc gac ttc gcg ccc 1343

Val Gly Glu Asp Leu Gly Ser Pro Pro Pro Pro Ala Asp Phe Ala Pro

355 360 365

gaa gac tac tcc tct ttc cag cac atc agg aag ggc ggc ttc tgc gac 1391

Glu Asp Tyr Ser Ser Phe Gln His Ile Arg Lys Gly Gly Phe Cys Asp

370 375 380

cag tac ctg gcg gtg ccg cag cac ccc tac cag tgg gcg aag ccc aag 1439

Gln Tyr Leu Ala Val Pro Gln His Pro Tyr Gln Trp Ala Lys Pro Lys

385 390 395 400

ccc ctg tcc cct acg tcc tac atg agc ccg acc ctg ccc gcc ctg gac 1487

Pro Leu Ser Pro Thr Ser Tyr Met Ser Pro Thr Leu Pro Ala Leu Asp

405 410 415

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Trp Gln Leu Pro Ser His Ser Gly Pro Tyr Glu Leu Arg Ile Glu Val

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|---|-----|-----|------|
| 420 | 425 | 430 | |
| cag ccc aag tcc cac cac cga gcc cac tac gag acg gag ggc agc cgg | | | 1583 |
| Gln Pro Lys Ser His His Arg Ala His Tyr Glu Thr Glu Gly Ser Arg | | | |
| 435 | 440 | 445 | |
| ggg gcc gtg aag gcg tcg gcc gga gga cac ccc atc gtg cag ctg cat | | | 1631 |
| Gly Ala Val Lys Ala Ser Ala Gly Gly His Pro Ile Val Gln Leu His | | | |
| 450 | 455 | 460 | |
| ggc tac ttg gag aat gag ccg ctg atg ctg cag ctt ttc att ggg acg | | | 1679 |
| Gly Tyr Leu Glu Asn Glu Pro Leu Met Leu Gln Leu Phe Ile Gly Thr | | | |
| 465 | 470 | 475 | 480 |
| gcg gac gac cgc ctg ctg cgc ccg cac gcc ttc tac cag gtg cac cgc | | | 1727 |
| Ala Asp Asp Arg Leu Leu Arg Pro His Ala Phe Tyr Gln Val His Arg | | | |
| 485 | 490 | 495 | |
| atc aca ggg aag acc gtg tcc acc acc agc cac gag gct atc ctc tcc | | | 1775 |
| Ile Thr Gly Lys Thr Val Ser Thr Thr Ser His Glu Ala Ile Leu Ser | | | |
| 500 | 505 | 510 | |
| aac acc aaa gtc ctg gag atc cca ctc ctg ccg gag aac agc atg cga | | | 1823 |
| Asn Thr Lys Val Leu Glu Ile Pro Leu Leu Pro Glu Asn Ser Met Arg | | | |
| 515 | 520 | 525 | |
| gcc gtc att gac tgt gcc gga atc ctg aaa ctc aga aac tcc gac att | | | 1871 |
| Ala Val Ile Asp Cys Ala Gly Ile Leu Lys Leu Arg Asn Ser Asp Ile | | | |
| 530 | 535 | 540 | |
| gaa ctt cgg aaa gga gag acg gac atc ggg agg aag aac aca cgg gta | | | 1919 |
| Glu Leu Arg Lys Gly Glu Thr Asp Ile Gly Arg Lys Asn Thr Arg Val | | | |

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|------|
| 545 | 550 | 555 | 560 | |
| cgg ctg gtg ttc cgc gtt cac gtc ccg caa ccc agc ggc cgc acg ctg | | | | 1967 |
| Arg Leu Val Phe Arg Val His Val Pro Gln Pro Ser Gly Arg Thr Leu | | | | |
| | 565 | 570 | 575 | |
| tcc ctg cag gtg gcc tcc aac ccc atc gaa tgc tcc cag cgc tca gct | | | | 2015 |
| Ser Leu Gln Val Ala Ser Asn Pro Ile Glu Cys Ser Gln Arg Ser Ala | | | | |
| | 580 | 585 | 590 | |
| cag gag ctg cct ctg gtg gag aag cag agc acg gac agc tat ccg gtc | | | | 2063 |
| Gln Glu Leu Pro Leu Val Glu Lys Gln Ser Thr Asp Ser Tyr Pro Val | | | | |
| | 595 | 600 | 605 | |
| gtg ggc ggg aag aag atg gtc ctg tct ggc cac aac ttc ctg cag gac | | | | 2111 |
| Val Gly Gly Lys Lys Met Val Leu Ser Gly His Asn Phe Leu Gln Asp | | | | |
| | 610 | 615 | 620 | |
| tcc aag gtc att ttc gtg gag aaa gcc cca gat ggc cac cat gtc tgg | | | | 2159 |
| Ser Lys Val Ile Phe Val Glu Lys Ala Pro Asp Gly His His Val Trp | | | | |
| | 625 | 630 | 635 | 640 |
| gag atg gaa gcg aaa act gac cgg gac ctg tgc aag ccg aat tct ctg | | | | 2207 |
| Glu Met Glu Ala Lys Thr Asp Arg Asp Leu Cys Lys Pro Asn Ser Leu | | | | |
| | 645 | 650 | 655 | |
| gtg gtt gag atc ccg cca ttt cgg aat cag agg ata acc agc ccc gtt | | | | 2255 |
| Val Val Glu Ile Pro Pro Phe Arg Asn Gln Arg Ile Thr Ser Pro Val | | | | |
| | 660 | 665 | 670 | |
| cac gtc agt ttc tac gtc tgc aac ggg aag aga aag cga agc cag tac | | | | 2303 |
| His Val Ser Phe Tyr Val Cys Asn Gly Lys Arg Lys Arg Ser Gln Tyr | | | | |

PH-1064PCT-US seq.TXT

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Gln Arg Phe Thr Tyr Leu Pro Ala Asn Gly Asn Ala Ile Phe Leu Thr

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gta agc cgt gaa cat gag cgc gtg ggg tgc ttt ttc taaagacgca 2397
Val Ser Arg Glu His Glu Arg Val Gly Cys Phe Phe

        705                      710                      715
gaaacgacgt cgccgtaaag cagcgtggcg tggtgcacat ttaactgtgt gatgtcccgt 2457
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<212> PRT

<213> Homo sapiens

<400> 48

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Ala Gly Gly Thr Met Lys Ser Ala Glu Glu Glu His Tyr Gly Tyr Ala
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PH-1064PCT-US seq.TXT

Ser Ser Asn Val Ser Pro Ala Leu Pro Leu Pro Thr Ala His Ser Thr
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Leu Pro Ala Pro Cys His Asn Leu Gln Thr Ser Thr Pro Gly Ile Ile
65 70 75 80
Pro Pro Ala Asp His Pro Ser Gly Tyr Gly Ala Ala Leu Asp Gly Gly
85 90 95
Pro Ala Gly Tyr Phe Leu Ser Ser Gly His Thr Arg Pro Asp Gly Ala
100 105 110
Pro Ala Leu Glu Ser Pro Arg Ile Glu Ile Thr Ser Cys Leu Gly Leu
115 120 125
Tyr His Asn Asn Asn Gln Phe Phe His Asp Val Glu Val Glu Asp Val
130 135 140
Leu Pro Ser Ser Lys Arg Ser Pro Ser Thr Ala Thr Leu Ser Leu Pro
145 150 155 160
Ser Leu Glu Ala Tyr Arg Asp Pro Ser Cys Leu Ser Pro Ala Ser Ser
165 170 175
Leu Ser Ser Arg Ser Cys Asn Ser Glu Ala Ser Ser Tyr Glu Ser Asn
180 185 190
Tyr Ser Tyr Pro Tyr Ala Ser Pro Gln Thr Ser Pro Trp Gln Ser Pro
195 200 205
Cys Val Ser Pro Lys Thr Thr Asp Pro Glu Glu Gly Phe Pro Arg Gly
210 215 220
Leu Gly Ala Cys Thr Leu Leu Gly Ser Pro Gln His Ser Pro Ser Thr
225 230 235 240

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
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| | | | | 245 | | | | | 250 | | | | | 255 | |
| Ser | Arg | Pro | Ala | Ser | Pro | Cys | Asn | Lys | Arg | Lys | Tyr | Ser | Leu | Asn | Gly |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| Arg | Gln | Pro | Pro | Tyr | Ser | Pro | His | His | Ser | Pro | Thr | Pro | Ser | Pro | His |
| | | | | 275 | | | | | 280 | | | | | 285 | |
| Gly | Ser | Pro | Arg | Val | Ser | Val | Thr | Asp | Asp | Ser | Trp | Leu | Gly | Asn | Thr |
| | | | | 290 | | | | | 295 | | | | | 300 | |
| Thr | Gln | Tyr | Thr | Ser | Ser | Ala | Ile | Val | Ala | Ala | Ile | Asn | Ala | Leu | Thr |
| 305 | | | | | | 310 | | | | | 315 | | | | 320 |
| Thr | Asp | Ser | Ser | Leu | Asp | Leu | Gly | Asp | Gly | Val | Pro | Val | Lys | Ser | Arg |
| | | | | | | 325 | | | | | 330 | | | | 335 |
| Lys | Thr | Thr | Leu | Glu | Gln | Pro | Pro | Ser | Val | Ala | Leu | Lys | Val | Glu | Pro |
| | | | | | | 340 | | | | | | | | 350 | |
| Val | Gly | Glu | Asp | Leu | Gly | Ser | Pro | Pro | Pro | Pro | Ala | Asp | Phe | Ala | Pro |
| | | | | | | 355 | | | | | | | | 365 | |
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| | | | | | | 370 | | | | | | | | 380 | |
| Gln | Tyr | Leu | Ala | Val | Pro | Gln | His | Pro | Tyr | Gln | Trp | Ala | Lys | Pro | Lys |
| 385 | | | | | | 390 | | | | | | | | 395 | 400 |
| Pro | Leu | Ser | Pro | Thr | Ser | Tyr | Met | Ser | Pro | Thr | Leu | Pro | Ala | Leu | Asp |
| | | | | | | 405 | | | | | | | | 415 | |
| Trp | Gln | Leu | Pro | Ser | His | Ser | Gly | Pro | Tyr | Glu | Leu | Arg | Ile | Glu | Val |
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PH-1064PCT-US seq.TXT

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Gly Ala Val Lys Ala Ser Ala Gly Gly His Pro Ile Val Gln Leu His
450 455 460
Gly Tyr Leu Glu Asn Glu Pro Leu Met Leu Gln Leu Phe Ile Gly Thr
465 470 475 480
Ala Asp Asp Arg Leu Leu Arg Pro His Ala Phe Tyr Gln Val His Arg
485 490 495
Ile Thr Gly Lys Thr Val Ser Thr Thr Ser His Glu Ala Ile Leu Ser
500 505 510
Asn Thr Lys Val Leu Glu Ile Pro Leu Leu Pro Glu Asn Ser Met Arg
515 520 525
Ala Val Ile Asp Cys Ala Gly Ile Leu Lys Leu Arg Asn Ser Asp Ile
530 535 540
Glu Leu Arg Lys Gly Glu Thr Asp Ile Gly Arg Lys Asn Thr Arg Val
545 550 555 560
Arg Leu Val Phe Arg Val His Val Pro Gln Pro Ser Gly Arg Thr Leu
565 570 575
Ser Leu Gln Val Ala Ser Asn Pro Ile Glu Cys Ser Gln Arg Ser Ala
580 585 590
Gln Glu Leu Pro Leu Val Glu Lys Gln Ser Thr Asp Ser Tyr Pro Val
595 600 605
Val Gly Gly Lys Lys Met Val Leu Ser Gly His Asn Phe Leu Gln Asp
610 615 620

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Ser Lys Val Ile Phe Val Glu Lys Ala Pro Asp Gly His His Val Trp
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Glu Met Glu Ala Lys Thr Asp Arg Asp Leu Cys Lys Pro Asn Ser Leu
645 650 655
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660 665 670
His Val Ser Phe Tyr Val Cys Asn Gly Lys Arg Lys Arg Ser Gln Tyr
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<210> 49

<211> 2353

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (241)..(1482)

<400> 49

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Met Ala Ser Gly Asp Thr Leu Tyr Ile Ala Thr Asp Gly Ser Glu Met
1 5 10 15
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Pro Ala Glu Ile Val Glu Leu His Glu Ile Glu Val Glu Thr Ile Pro
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gtg gag acc atc gag acc aca gtg gtg ggc gag gag gag gag gag gac 384
Val Glu Thr Ile Glu Thr Thr Val Val Gly Glu Glu Glu Glu Glu Asp
35 40 45
gac gac gac gag gac ggc ggc ggt ggc gac cac ggc ggc ggg ggc ggc 432
Asp Asp Asp Glu Asp Gly Gly Gly Gly Asp His Gly Gly Gly Gly Gly
50 55 60
cac ggg cac gcc ggc cac cac cac cac cat cac cac cac cac cac 480
His Gly His Ala Gly His His His His His His His His His His His
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Pro Pro Met Ile Ala Leu Gln Pro Leu Val Thr Asp Asp Pro Thr Gln
85 90 95
gtg cac cac cac cag gag gtg atc ctg gtg cag acg cgc gag gag gtg 576
Val His His His Gln Glu Val Ile Leu Val Gln Thr Arg Glu Glu Val
100 105 110
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Val Gly Gly Asp Asp Ser Asp Gly Leu Arg Ala Glu Asp Gly Phe Glu

PH-1064PCT-US seq.TXT

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| gat cag att ctc atc ccg gtg ccc gcg ccg gcc ggc ggc gac gac gac | | | 672 |
| Asp Gln Ile Leu Ile Pro Val Pro Ala Pro Ala Gly Gly Asp Asp Asp | | | |
| 130 | 135 | 140 | |
| tac att gaa caa acg ctg gtc acc gtg gcg gcg gcc ggc aag agc ggc | | | 720 |
| Tyr Ile Glu Gln Thr Leu Val Thr Val Ala Ala Ala Gly Lys Ser Gly | | | |
| 145 | 150 | 155 | 160 |
| ggc ggc ggc tcg tcg tcg tcg gga ggc ggc cgc gtc aag aag ggc ggc | | | 768 |
| Gly Gly Gly Ser Ser Ser Ser Gly Gly Gly Arg Val Lys Lys Gly Gly | | | |
| 165 | 170 | 175 | |
| ggc aag aag agc ggc aag aag agt tac ctc agc ggc ggc gcc ggc gcg | | | 816 |
| Gly Lys Lys Ser Gly Lys Lys Ser Tyr Leu Ser Gly Gly Ala Gly Ala | | | |
| 180 | 185 | 190 | |
| gcg ggc ggc cgc ggc gcc gac ccg ggc aac aag aag tgg gag cag aag | | | 864 |
| Ala Gly Gly Arg Gly Ala Asp Pro Gly Asn Lys Lys Trp Glu Gln Lys | | | |
| 195 | 200 | 205 | |
| cag gtg cag atc aag acc ctg gag ggc gag ttc tcg gtc acc atg tgg | | | 912 |
| Gln Val Gln Ile Lys Thr Leu Glu Gly Glu Phe Ser Val Thr Met Trp | | | |
| 210 | 215 | 220 | |
| tcc tca gat gaa aaa aaa gat att gac cat gag aca gtg gtt gaa gaa | | | 960 |
| Ser Ser Asp Glu Lys Lys Asp Ile Asp His Glu Thr Val Val Glu Glu | | | |
| 225 | 230 | 235 | 240 |
| cag atc att gga gag aac tca cct cct gat tat tca gaa tat atg aca | | | 1008 |
| Gln Ile Ile Gly Glu Asn Ser Pro Pro Asp Tyr Ser Glu Tyr Met Thr | | | |

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| 245 | 250 | 255 | |
| gga aag aaa ctt cct cct gga gga ata cct ggc att gac ctc tca gat | 1056 | | |
| Gly Lys Lys Leu Pro Pro Gly Gly Ile Pro Gly Ile Asp Leu Ser Asp | | | |
| 260 | 265 | 270 | |
| ccc aaa caa ctg gca gaa ttt gct aga atg aag cca aga aaa att aaa | 1104 | | |
| Pro Lys Gln Leu Ala Glu Phe Ala Arg Met Lys Pro Arg Lys Ile Lys | | | |
| 275 | 280 | 285 | |
| gaa gat gat gct cca aga aca ata gct tgc cct cat aaa ggc tgc aca | 1152 | | |
| Glu Asp Asp Ala Pro Arg Thr Ile Ala Cys Pro His Lys Gly Cys Thr | | | |
| 290 | 295 | 300 | |
| aag atg ttc agg gat aac tcg gcc atg aga aaa cat ctg cac acc cac | 1200 | | |
| Lys Met Phe Arg Asp Asn Ser Ala Met Arg Lys His Leu His Thr His | | | |
| 305 | 310 | 315 | 320 |
| ggt ccc aga gtc cac gtc tgt gca gaa tgt ggc aaa gct ttt gtt gag | 1248 | | |
| Gly Pro Arg Val His Val Cys Ala Glu Cys Gly Lys Ala Phe Val Glu | | | |
| 325 | 330 | 335 | |
| agt tca aaa cta aaa cga cac caa ctg gtt cat act gga gag aag ccc | 1296 | | |
| Ser Ser Lys Leu Lys Arg His Gln Leu Val His Thr Gly Glu Lys Pro | | | |
| 340 | 345 | 350 | |
| ttt cag tgc acg ttc gaa ggc tgt ggg aaa cgc ttt tca ctg gac ttc | 1344 | | |
| Phe Gln Cys Thr Phe Glu Gly Cys Gly Lys Arg Phe Ser Leu Asp Phe | | | |
| 355 | 360 | 365 | |
| aat ttg cgc aca cat gtg cga atc cat acc gga gac agg ccc tat gtg | 1392 | | |
| Asn Leu Arg Thr His Val Arg Ile His Thr Gly Asp Arg Pro Tyr Val | | | |

370 tgc ccc ttc gat ggt tgt aat aag aag ttt gct cag tca act aac ctg 1440
Cys Pro Phe Asp Gly Cys Asn Lys Lys Phe Ala Gln Ser Thr Asn Leu
385 390 395 400
aaa tct cac atc tta aca cat gct aag gcc aaa aac aac cag 1482
Lys Ser His Ile Leu Thr His Ala Lys Ala Lys Asn Asn Gln
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<211> 414

PH-1064PCT-US seq.TXT

<212> PRT

<213> Homo sapiens

<400> 50

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Val Glu Thr Ile Glu Thr Thr Val Val Gly Glu Glu Glu Glu Asp
      35             40             45
Asp Asp Asp Glu Asp Gly Gly Gly Gly Asp His Gly Gly Gly Gly Gly
      50             55             60
His Gly His Ala Gly His His His His His His His His His His His
      65             70             75             80
Pro Pro Met Ile Ala Leu Gln Pro Leu Val Thr Asp Asp Pro Thr Gln
      85             90             95
Val His His His Gln Glu Val Ile Leu Val Gln Thr Arg Glu Glu Val
      100            105            110
Val Gly Gly Asp Asp Ser Asp Gly Leu Arg Ala Glu Asp Gly Phe Glu
      115            120            125
Asp Gln Ile Leu Ile Pro Val Pro Ala Pro Ala Gly Gly Asp Asp Asp
      130            135            140
Tyr Ile Glu Gln Thr Leu Val Thr Val Ala Ala Ala Gly Lys Ser Gly
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Gly Gly Gly Ser Ser Ser Ser Gly Gly Gly Arg Val Lys Lys Gly Gly

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PH-1064PCT-US seq.TXT

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| 165 | 170 | 175 |
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| 180 | 185 | 190 |
| Ala Gly Gly Arg Gly Ala Asp Pro Gly Asn Lys Lys Trp Glu Gln Lys | | |
| 195 | 200 | 205 |
| Gln Val Gln Ile Lys Thr Leu Glu Gly Glu Phe Ser Val Thr Met Trp | | |
| 210 | 215 | 220 |
| Ser Ser Asp Glu Lys Lys Asp Ile Asp His Glu Thr Val Val Glu Glu | | |
| 225 | 230 | 235 |
| Gln Ile Ile Gly Glu Asn Ser Pro Pro Asp Tyr Ser Glu Tyr Met Thr | | |
| 245 | 250 | 255 |
| Gly Lys Lys Leu Pro Pro Gly Gly Ile Pro Gly Ile Asp Leu Ser Asp | | |
| 260 | 265 | 270 |
| Pro Lys Gln Leu Ala Glu Phe Ala Arg Met Lys Pro Arg Lys Ile Lys | | |
| 275 | 280 | 285 |
| Glu Asp Asp Ala Pro Arg Thr Ile Ala Cys Pro His Lys Gly Cys Thr | | |
| 290 | 295 | 300 |
| Lys Met Phe Arg Asp Asn Ser Ala Met Arg Lys His Leu His Thr His | | |
| 305 | 310 | 315 |
| Gly Pro Arg Val His Val Cys Ala Glu Cys Gly Lys Ala Phe Val Glu | | |
| 325 | 330 | 335 |
| Ser Ser Lys Leu Lys Arg His Gln Leu Val His Thr Gly Glu Lys Pro | | |
| 340 | 345 | 350 |
| Phe Gln Cys Thr Phe Glu Gly Cys Gly Lys Arg Phe Ser Leu Asp Phe | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 355 | 360 | 365 | | | | | | | | | | | | | |
| Asn | Leu | Arg | Thr | His | Val | Arg | Ile | His | Thr | Gly | Asp | Arg | Pro | Tyr | Val |
| 370 | 375 | 380 | | | | | | | | | | | | | |
| Cys | Pro | Phe | Asp | Gly | Cys | Asn | Lys | Lys | Phe | Ala | Gln | Ser | Thr | Asn | Leu |
| 385 | 390 | 395 | 400 | | | | | | | | | | | | |
| Lys | Ser | His | Ile | Leu | Thr | His | Ala | Lys | Ala | Lys | Asn | Asn | Gln | | |
| 405 | 410 | | | | | | | | | | | | | | |

<210> 51

<211> 1229

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<213> Homo sapiens

<220>

<221> CDS

<222> (222)..(950)

<400> 51

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ccaacattac ttgagtcttt ggataaaatt gagaaaagag tctacaagta ttgtggactc 180
tacaggaggc aggaggctga caactggcag taaagacaaa g atg tca ggc ctg cgg 236

Met Ser Gly Leu Arg

1 5

ccc ggc act caa gtg gac cct gag att gag ctt ttt gta aag gct gga 284
Pro Gly Thr Gln Val Asp Pro Glu Ile Glu Leu Phe Val Lys Ala Gly

PH-1064PCT-US seq.TXT

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| agt gat gga gag agt att gga aac tgt ccc ttt tgc caa cgc ctt ttc | 332 | | |
| Ser Asp Gly Glu Ser Ile Gly Asn Cys Pro Phe Cys Gln Arg Leu Phe | | | |
| 25 | 30 | 35 | |
| atg atc ctc tgg ctt aaa gga gtt aaa ttt aat gtg aca act gtt gac | 380 | | |
| Met Ile Leu Trp Leu Lys Gly Val Lys Phe Asn Val Thr Thr Val Asp | | | |
| 40 | 45 | 50 | |
| atg acc aga aag cct gaa gaa cta aag gac tta gcc cca ggt acc aat | 428 | | |
| Met Thr Arg Lys Pro Glu Glu Leu Lys Asp Leu Ala Pro Gly Thr Asn | | | |
| 55 | 60 | 65 | |
| cct ccg ttc ctg gtg tat aac aag gag ttg aaa aca gac ttc att aaa | 476 | | |
| Pro Pro Phe Leu Val Tyr Asn Lys Glu Leu Lys Thr Asp Phe Ile Lys | | | |
| 70 | 75 | 80 | 85 |
| att gag gag ttt tta gaa caa acc ctg gct cct cca agg tac cct cac | 524 | | |
| Ile Glu Glu Phe Leu Glu Gln Thr Leu Ala Pro Pro Arg Tyr Pro His | | | |
| 90 | 95 | 100 | |
| ctg agt ccc aag tac aag gag tct ttt gat gtg ggc tgt aac ctc ttt | 572 | | |
| Leu Ser Pro Lys Tyr Lys Glu Ser Phe Asp Val Gly Cys Asn Leu Phe | | | |
| 105 | 110 | 115 | |
| gcc aag ttt tct gca tac att aag aat aca caa aag gag gca aat aag | 620 | | |
| Ala Lys Phe Ser Ala Tyr Ile Lys Asn Thr Gln Lys Glu Ala Asn Lys | | | |
| 120 | 125 | 130 | |
| aat ttt gaa aaa tct ctg ctc aaa gaa ttc aag cgt ctg gat gac tac | 668 | | |
| Asn Phe Glu Lys Ser Leu Leu Lys Glu Phe Lys Arg Leu Asp Asp Tyr | | | |

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140 145

135
tta aac acc cca ctt ctg gat gaa att gat cca gac agt gct ggg gaa 716
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150 155 160 165
ccc cca gtt tcc aga aga cta ttc ttg gat ggg gac cag cta aca ctg 764
Pro Pro Val Ser Arg Arg Leu Phe Leu Asp Gly Asp Gln Leu Thr Leu
170 175 180
gct gat tgt agc ttg tta ccc aag ctg aac att att aaa gtt gct gcc 812
Ala Asp Cys Ser Leu Leu Pro Lys Leu Asn Ile Ile Lys Val Ala Ala
185 190 195
aag aaa tat cgt gac ttt gac att cca gca gaa ttc tca gga gtc tgg 860
Lys Lys Tyr Arg Asp Phe Asp Ile Pro Ala Glu Phe Ser Gly Val Trp
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Arg Tyr Leu His Asn Ala Tyr Ala Arg Glu Glu Phe Thr His Thr Cys
215 220 225
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<210> 52

<211> 243

<212> PRT

<213> Homo sapiens

<400> 52

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Cys Gln Arg Leu Phe Met Ile Leu Trp Leu Lys Gly Val Lys Phe Asn
      35              40              45
Val Thr Thr Val Asp Met Thr Arg Lys Pro Glu Glu Leu Lys Asp Leu
      50              55              60
Ala Pro Gly Thr Asn Pro Pro Phe Leu Val Tyr Asn Lys Glu Leu Lys
      65              70              75              80
Thr Asp Phe Ile Lys Ile Glu Glu Phe Leu Glu Gln Thr Leu Ala Pro
      85              90              95
Pro Arg Tyr Pro His Leu Ser Pro Lys Tyr Lys Glu Ser Phe Asp Val
      100             105             110
Gly Cys Asn Leu Phe Ala Lys Phe Ser Ala Tyr Ile Lys Asn Thr Gln
      115             120             125
Lys Glu Ala Asn Lys Asn Phe Glu Lys Ser Leu Leu Lys Glu Phe Lys
      130             135             140
Arg Leu Asp Asp Tyr Leu Asn Thr Pro Leu Leu Asp Glu Ile Asp Pro

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PH-1064PCT-US seq.TXT

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| 145 | 150 | 155 | 160 |
| Asp Ser Ala Gly Glu Pro Pro Val Ser Arg Arg Leu Phe Leu Asp Gly | | | |
| | 165 | 170 | 175 |
| Asp Gln Leu Thr Leu Ala Asp Cys Ser Leu Leu Pro Lys Leu Asn Ile | | | |
| | 180 | 185 | 190 |
| Ile Lys Val Ala Ala Lys Lys Tyr Arg Asp Phe Asp Ile Pro Ala Glu | | | |
| | 195 | 200 | 205 |
| Phe Ser Gly Val Trp Arg Tyr Leu His Asn Ala Tyr Ala Arg Glu Glu | | | |
| | 210 | 215 | 220 |
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| 225 | 230 | 235 | 240 |
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<210> 53

<211> 4001

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2)..(316)

<400> 53

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15

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Phe Asn Glu Ser Phe Ile Tyr Asp Ile Pro Thr Asp Leu Leu Pro Asp
      35              40              45
atc agc atc gag ttc ctc gtt atc gac ttc gat cgc acc acc aag aat   193
Ile Ser Ile Glu Phe Leu Val Ile Asp Phe Asp Arg Thr Thr Lys Asn
      50              55              60
gag gtg gtg ggg agg ctg atc ctg ggg gca cac agt gtc aca gcc agt   241
Glu Val Val Gly Arg Leu Ile Leu Gly Ala His Ser Val Thr Ala Ser
      65              70              75              80
ggg gct gaa cac tgg aga gag gtc tgc gag agc ccc cgc aag cct gtg   289
Gly Ala Glu His Trp Arg Glu Val Cys Glu Ser Pro Arg Lys Pro Val
      85              90              95
gcc aag tgg cac agt ctg agc gag tac taatcctggt cttctctcct   336
Ala Lys Trp His Ser Leu Ser Glu Tyr
      100             105
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<211> 105

<212> PRT

<213> Homo sapiens

<400> 54

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 35 40 45
 Ile Ser Ile Glu Phe Leu Val Ile Asp Phe Asp Arg Thr Thr Lys Asn
 50 55 60
 Glu Val Val Gly Arg Leu Ile Leu Gly Ala His Ser Val Thr Ala Ser
 65 70 75 80
 Gly Ala Glu His Trp Arg Glu Val Cys Glu Ser Pro Arg Lys Pro Val

PH-1064PCT-US seq.TXT

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| atg gaa tca ggc ttc acc tcc aag gac acc tat cta agc cat ttt aac | 165 | | |
| Met Glu Ser Gly Phe Thr Ser Lys Asp Thr Tyr Leu Ser His Phe Asn | | | |
| 1 5 10 15 | | | |
| cct cgg gat tac cta gaa aaa tat tac aag ttt ggt tct agg cac tct | 213 | | |
| Pro Arg Asp Tyr Leu Glu Lys Tyr Tyr Lys Phe Gly Ser Arg His Ser | | | |
| 20 25 30 | | | |
| gca gaa agc cag att ctt aag cac ctt ctg aaa aat ctt ttc aag ata | 261 | | |
| Ala Glu Ser Gln Ile Leu Lys His Leu Leu Lys Asn Leu Phe Lys Ile | | | |
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PH-1064PCT-US seq.TXT

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Gly Pro Thr Ile Tyr Gln Leu Leu Ser Ala Cys Glu Ser Phe Lys Glu
65 70 75 80
atc gtc gtc act gac tac tca gac cag aac ctg cag gag ctg gag aag 405
Ile Val Val Thr Asp Tyr Ser Asp Gln Asn Leu Gln Glu Leu Glu Lys
85 90 95
tgg ctg aag aaa gag cca gag gcc ttt gac tgg tcc cca gtg gtg acc 453
Trp Leu Lys Lys Glu Pro Glu Ala Phe Asp Trp Ser Pro Val Val Thr
100 105 110
tat gtg tgt gat ctt gaa ggg aac aga gtc aag ggt cca gag aag gag 501
Tyr Val Cys Asp Leu Glu Gly Asn Arg Val Lys Gly Pro Glu Lys Glu
115 120 125
gag aag ttg aga cag gcg gtc aag cag gtg ctg aag tgt gat gtg act 549
Glu Lys Leu Arg Gln Ala Val Lys Gln Val Leu Lys Cys Asp Val Thr
130 135 140
cag agc cag cca ctg ggg gcc gtc ccc tta ccc ccg gct gac tgc gtg 597
Gln Ser Gln Pro Leu Gly Ala Val Pro Leu Pro Pro Ala Asp Cys Val
145 150 155 160
ctc agc aca ctg tgt ctg gat gcc gcc tgc cca gac ctc ccc acc tac 645
Leu Ser Thr Leu Cys Leu Asp Ala Ala Cys Pro Asp Leu Pro Thr Tyr
165 170 175
tgc agg gcg ctc agg aac ctc ggc agc cta ctg aag cca ggg ggc ttc 693

PH-1064PCT-US seq.TXT

Cys Arg Ala Leu Arg Asn Leu Gly Ser Leu Leu Lys Pro Gly Gly Phe

180

185

190

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Leu Val Ile Met Asp Ala Leu Lys Ser Ser Tyr Tyr Met Ile Gly Glu

195

200

205

cag aag ttc tcc agc ctc ccc ctg ggc cgg gag gca gta gag gct gct 789

Gln Lys Phe Ser Ser Leu Pro Leu Gly Arg Glu Ala Val Glu Ala Ala

210

215

220

gtg aaa gag gct ggc tac aca atc gaa tgg ttt gag gtg atc tcg caa 837

Val Lys Glu Ala Gly Tyr Thr Ile Glu Trp Phe Glu Val Ile Ser Gln

225

230

235

240

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Ser Tyr Ser Ser Thr Met Ala Asn Asn Glu Gly Leu Phe Ser Leu Val

245

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255

gcg agg aag ctg agc aga ccc ctg tgatgcctgt gacctcaatt aaagcaattc 939

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<210> 56

<211> 264

<212> PRT

<213> Homo sapiens

<400> 56

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| Pro Arg Asp Tyr Leu Glu Lys Tyr Tyr Lys Phe Gly Ser Arg His Ser | | | |
| 20 | 25 | 30 | |
| Ala Glu Ser Gln Ile Leu Lys His Leu Leu Lys Asn Leu Phe Lys Ile | | | |
| 35 | 40 | 45 | |
| Phe Cys Leu Asp Gly Val Lys Gly Asp Leu Leu Ile Asp Ile Gly Ser | | | |
| 50 | 55 | 60 | |
| Gly Pro Thr Ile Tyr Gln Leu Leu Ser Ala Cys Glu Ser Phe Lys Glu | | | |
| 65 | 70 | 75 | 80 |
| Ile Val Val Thr Asp Tyr Ser Asp Gln Asn Leu Gln Glu Leu Glu Lys | | | |
| 85 | 90 | 95 | |
| Trp Leu Lys Lys Glu Pro Glu Ala Phe Asp Trp Ser Pro Val Val Thr | | | |
| 100 | 105 | 110 | |
| Tyr Val Cys Asp Leu Glu Gly Asn Arg Val Lys Gly Pro Glu Lys Glu | | | |
| 115 | 120 | 125 | |
| Glu Lys Leu Arg Gln Ala Val Lys Gln Val Leu Lys Cys Asp Val Thr | | | |
| 130 | 135 | 140 | |
| Gln Ser Gln Pro Leu Gly Ala Val Pro Leu Pro Pro Ala Asp Cys Val | | | |
| 145 | 150 | 155 | 160 |
| Leu Ser Thr Leu Cys Leu Asp Ala Ala Cys Pro Asp Leu Pro Thr Tyr | | | |
| 165 | 170 | 175 | |
| Cys Arg Ala Leu Arg Asn Leu Gly Ser Leu Leu Lys Pro Gly Gly Phe | | | |
| 180 | 185 | 190 | |
| Leu Val Ile Met Asp Ala Leu Lys Ser Ser Tyr Tyr Met Ile Gly Glu | | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 195 | 200 | 205 |
| Gln Lys Phe Ser Ser Leu Pro Leu Gly Arg Glu Ala Val Glu Ala Ala | | |
| 210 | 215 | 220 |
| Val Lys Glu Ala Gly Tyr Thr Ile Glu Trp Phe Glu Val Ile Ser Gln | | |
| 225 | 230 | 235 |
| Ser Tyr Ser Ser Thr Met Ala Asn Asn Glu Gly Leu Phe Ser Leu Val | | |
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<211> 2617

<212> DNA

<213> Homo sapiens

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<400> 57

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 Met Ala Pro Gly Val Ala Arg

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5

ggg ccg acg ccg tac tgg agg ttg cgc ctc ggt ggc gcc gcg ctg ctc 162
 Gly Pro Thr Pro Tyr Trp Arg Leu Arg Leu Gly Gly Ala Ala Leu Leu

PH-1064PCT-US seq.TXT

| 10 | 15 | 20 | |
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| ctg ctg ctc atc ccg gtg gcc gcc gcg cag gag cct ccc gga gct gct | | | 210 |
| Leu Leu Leu Ile Pro Val Ala Ala Ala Gln Glu Pro Pro Gly Ala Ala | | | |
| 25 | 30 | 35 | |
| tgt tct cag aac aca aac aaa acc tgt gaa gag tgc ctg aag aac gtc | | | 258 |
| Cys Ser Gln Asn Thr Asn Lys Thr Cys Glu Glu Cys Leu Lys Asn Val | | | |
| 40 | 45 | 50 | 55 |
| tcc tgt ctt tgg tgc aac act aac aag gct tgt ctg gac tac cca gtt | | | 306 |
| Ser Cys Leu Trp Cys Asn Thr Asn Lys Ala Cys Leu Asp Tyr Pro Val | | | |
| | 60 | 65 | 70 |
| aca agc gtc ttg cca ccg gct tcc ctt tgt aaa ttg agc tct gca cgc | | | 354 |
| Thr Ser Val Leu Pro Pro Ala Ser Leu Cys Lys Leu Ser Ser Ala Arg | | | |
| | 75 | 80 | 85 |
| tgg gga gtt tgt tgg gtg aac ttt gag gcg ctg atc atc acc atg tcg | | | 402 |
| Trp Gly Val Cys Trp Val Asn Phe Glu Ala Leu Ile Ile Thr Met Ser | | | |
| | 90 | 95 | 100 |
| gta gtc ggg gga acc ctc ctc ctg ggc att gcc atc tgc tgc tgc tgc | | | 450 |
| Val Val Gly Gly Thr Leu Leu Leu Gly Ile Ala Ile Cys Cys Cys Cys | | | |
| | 105 | 110 | 115 |
| tgc tgc agg agg aag agg agc cgg aag ccg gac agg agt gag gag aag | | | 498 |
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| 120 | 125 | 130 | 135 |
| gcc atg cgt gag cgg gag gag agg cgg ata cgg cag gag gaa cgg aga | | | 546 |
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PH-1064PCT-US seq.TXT

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| Ala Glu Met Lys Thr Arg His Asp Glu Ile Arg Lys Lys Tyr Gly Leu | | | |
| 155 | 160 | 165 | |
| ttt aaa gaa gaa aac ccg tat gct aga ttt gaa aac aac taaagcgctc | | | 643 |
| Phe Lys Glu Glu Asn Pro Tyr Ala Arg Phe Glu Asn Asn | | | |
| 170 | 175 | 180 | |
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| accacgtggc cattgcggtc tcttgacctt ggccagtga cctgccagcc ttccaggaca | | | 763 |
| ggcggccgga gagctgcccc tgaaggacag tcctctcgtc ttgcagactg gtgaccttct | | | 823 |
| attccctggt catctctggt tctagattta gtcacttgaa ataagaaatc tttggggttt | | | 883 |
| gggctttttt atactcttct cagtttgtga aacgctaact gcacacgaag ccgcctgacg | | | 943 |
| gcacccagcg ctgtggctgt cattctccca gggcagaacc ctgcgtttct ctctgtccac | | | 1003 |
| taacaagctt cacacgcaac acaggggaagt cggtttgact tttgtcatga ggagaactga | | | 1063 |
| ccagccctca tcattcccca taaaaccacg gacagcgtct gtgtgcgcat cttgagtctt | | | 1123 |
| cacacctgtt gactcacacg gcttttgctg atgacacggg gctccagtac acagtctgat | | | 1183 |
| aaggacttaa cgtcctaacc tcaattgtat taaatagcat tggggaatag ctaaaccctt | | | 1243 |
| ttaaaaaaat ttattggatt ttctccctg cttaaaagat ttcaccagaa aaccttcata | | | 1303 |
| taaaaattca ggcccttttt ggacaatttt taaaatttgt atctttacta gaacatgaga | | | 1363 |
| atctttttcc cttggaagct tgaattataa atgtggtgtt tggcctgcct cagcagcacc | | | 1423 |
| agttgactgc tcgtgtgcca gcggtgtggg gaggacgggg caggacgctg cagctctctc | | | 1483 |
| cagccctgtt ggcaccccca gtgcctgcag gcctctcgct gcctcttggg ctgtctgggg | | | 1543 |
| ggtggccatt tagggatcgt ggggacgggg tccaccccaa gaagaaagaa aggcccgctc | | | 1603 |
| acaggcccgg ctctggccac gtgccccgga agcaggtgtg tccagagtca gctgagggct | | | 1663 |

PH-1064PCT-US seq.TXT

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<210> 58

<211> 180

<212> PRT

<213> Homo sapiens

<400> 58

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| 35 | 40 | 45 |
| Glu Glu Cys Leu Lys Asn Val Ser Cys Leu Trp Cys Asn Thr Asn Lys | | |
| 50 | 55 | 60 |
| Ala Cys Leu Asp Tyr Pro Val Thr Ser Val Leu Pro Pro Ala Ser Leu | | |
| 65 | 70 | 75 |
| Cys Lys Leu Ser Ser Ala Arg Trp Gly Val Cys Trp Val Asn Phe Glu | | |
| 85 | 90 | 95 |
| Ala Leu Ile Ile Thr Met Ser Val Val Gly Gly Thr Leu Leu Leu Gly | | |
| 100 | 105 | 110 |
| Ile Ala Ile Cys Cys Cys Cys Cys Cys Arg Arg Lys Arg Ser Arg Lys | | |
| 115 | 120 | 125 |
| Pro Asp Arg Ser Glu Glu Lys Ala Met Arg Glu Arg Glu Glu Arg Arg | | |
| 130 | 135 | 140 |
| Ile Arg Gln Glu Glu Arg Arg Ala Glu Met Lys Thr Arg His Asp Glu | | |
| 145 | 150 | 155 |
| Ile Arg Lys Lys Tyr Gly Leu Phe Lys Glu Glu Asn Pro Tyr Ala Arg | | |
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PH-1064PCT-US seq.TXT

<212> DNA

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<222> (469)..(1875)

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 cttttttcct ttttttgc at tggcgtcttg gggctgttac acacacgcgc gctgtccatt 240
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 aatggctcgt tttcttagga tttcaacacg aaggcatcat gcatttttga aaaactagta 360
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Met Glu Glu

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aga atg gaa atg att tct gaa agg cca aaa gag agt atg tat tcc tgg 525
 Arg Met Glu Met Ile Ser Glu Arg Pro Lys Glu Ser Met Tyr Ser Trp

5

10

15

aac aaa act gca gag aaa agt gat ttt gaa gct gta gaa gca ctt atg 573
 Asn Lys Thr Ala Glu Lys Ser Asp Phe Glu Ala Val Glu Ala Leu Met

20

25

30

35

tca atg agc tgc agt tgg aag tct gat ttt aag aaa tac gtt gaa aac 621
 Ser Met Ser Cys Ser Trp Lys Ser Asp Phe Lys Lys Tyr Val Glu Asn

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| Arg Pro Val Thr Pro Val Ser Asp Leu Ser Glu Glu Glu Asn Leu Leu | | | |
| 55 | 60 | 65 | |
| ccg gga aca cct gat ttt cat aca atc cca gca ttt tgt ttg act cca | | | 717 |
| Pro Gly Thr Pro Asp Phe His Thr Ile Pro Ala Phe Cys Leu Thr Pro | | | |
| 70 | 75 | 80 | |
| cct tac agt cct tct gac ttt gaa ccc tct caa gtg tca aat ctg atg | | | 765 |
| Pro Tyr Ser Pro Ser Asp Phe Glu Pro Ser Gln Val Ser Asn Leu Met | | | |
| 85 | 90 | 95 | |
| gca cca gcg cca tct act gta cac ttc aag tca ctc tca gat act gcc | | | 813 |
| Ala Pro Ala Pro Ser Thr Val His Phe Lys Ser Leu Ser Asp Thr Ala | | | |
| 100 | 105 | 110 | 115 |
| aaa cct cac att gcc gca cct ttc aaa gag gaa gaa aag agc cca gta | | | 861 |
| Lys Pro His Ile Ala Ala Pro Phe Lys Glu Glu Glu Lys Ser Pro Val | | | |
| 120 | 125 | 130 | |
| tct gcc ccc aaa ctc ccc aaa gct cag gca aca agt gtg att cgt cat | | | 909 |
| Ser Ala Pro Lys Leu Pro Lys Ala Gln Ala Thr Ser Val Ile Arg His | | | |
| 135 | 140 | 145 | |
| aca gct gat gcc cag cta tgt aac cac cag acc tgc cca atg aaa gca | | | 957 |
| Thr Ala Asp Ala Gln Leu Cys Asn His Gln Thr Cys Pro Met Lys Ala | | | |
| 150 | 155 | 160 | |
| gcc agc atc ctc aac tat cag aac aat tct ttt aga aga aga acc cac | | | 1005 |
| Ala Ser Ile Leu Asn Tyr Gln Asn Asn Ser Phe Arg Arg Arg Thr His | | | |

PH-1064PCT-US seq.TXT

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cca aac aga tcc aaa tgt gag aga aac aca gtg gca gat gtt gat gag 1101
Pro Asn Arg Ser Lys Cys Glu Arg Asn Thr Val Ala Asp Val Asp Glu
200                               205                               210
aaa gca agt gct gca ctt tat gac ttt tct gtg cct tcc tca gag acg 1149
Lys Ala Ser Ala Ala Leu Tyr Asp Phe Ser Val Pro Ser Ser Glu Thr
215                               220                               225
gtc atc tgc agg tct cag cca gcc cct gtg tcc cca caa cag aag tca 1197
Val Ile Cys Arg Ser Gln Pro Ala Pro Val Ser Pro Gln Gln Lys Ser
230                               235                               240
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Val Leu Val Ser Pro Pro Ala Val Ser Ala Gly Gly Val Pro Pro Met
245                               250                               255
ccg gtc atc tgc cag atg gtt ccc ctt cct gcc aac aac cct gtt gtg 1293
Pro Val Ile Cys Gln Met Val Pro Leu Pro Ala Asn Asn Pro Val Val
260                               265                               270                               275
aca aca gtc gtt ccc agc act cct ccc agc cag cca cca gct gtt tgc 1341
Thr Thr Val Val Pro Ser Thr Pro Pro Ser Gln Pro Pro Ala Val Cys
280                               285                               290
ccc cct gtt gtg ttc atg ggc aca caa gtc ccc aaa ggc gct gtc atg 1389
Pro Pro Val Val Phe Met Gly Thr Gln Val Pro Lys Gly Ala Val Met

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PH-1064PCT-US seq.TXT

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| Phe Val Val Pro Gln Pro Val Val Gln Ser Ser Lys Pro Pro Val Val | | | |
| 310 | 315 | 320 | |
| agc ccg aat ggc acc aga ctc tct ccc att gcc cct gct cct ggg ttt | 1485 | | |
| Ser Pro Asn Gly Thr Arg Leu Ser Pro Ile Ala Pro Ala Pro Gly Phe | | | |
| 325 | 330 | 335 | |
| tcc cct tca gca gca aaa gtc act cct cag att gat tca tca agg ata | 1533 | | |
| Ser Pro Ser Ala Ala Lys Val Thr Pro Gln Ile Asp Ser Ser Arg Ile | | | |
| 340 | 345 | 350 | 355 |
| agg agt cac atc tgt agc cac cca gga tgt ggc aag aca tac ttt aaa | 1581 | | |
| Arg Ser His Ile Cys Ser His Pro Gly Cys Gly Lys Thr Tyr Phe Lys | | | |
| 360 | 365 | 370 | |
| agt tcc cat ctg aag gcc cac acg agg acg cac aca gga gaa aag cct | 1629 | | |
| Ser Ser His Leu Lys Ala His Thr Arg Thr His Thr Gly Glu Lys Pro | | | |
| 375 | 380 | 385 | |
| ttc agc tgt agc tgg aaa ggt tgt gaa agg agg ttt gcc cgt tct gat | 1677 | | |
| Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp | | | |
| 390 | 395 | 400 | |
| gaa ctg tcc aga cac agg cga acc cac acg ggt gag aag aaa ttt gcg | 1725 | | |
| Glu Leu Ser Arg His Arg Arg Thr His Thr Gly Glu Lys Lys Phe Ala | | | |
| 405 | 410 | 415 | |
| tgc ccc atg tgt gac cgg cgg ttc atg agg agt gac cat ttg acc aag | 1773 | | |
| Cys Pro Met Cys Asp Arg Arg Phe Met Arg Ser Asp His Leu Thr Lys | | | |

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|------|
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Asn Leu Leu Pro Gly Thr Pro Asp Phe His Thr Ile Pro Ala Phe Cys

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PH-1064PCT-US seq.TXT

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| Asp | Asn | Thr | Lys | Phe | Arg | Ser | His | Glu | Gly | Glu | Thr | Ala | Tyr | Ile | Arg | | |
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PH-1064PCT-US seq.TXT

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200

205

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210

215

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240

245

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| Glu | Asp | Val | Phe | Tyr | Lys | Tyr | Gly | Ala | Ile | Arg | Asp | Ile | Asp | Leu | Lys |
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| Pro | Pro | Ser | Gly | Ser | Trp | Gln | Asp | Leu | Lys | Asp | His | Met | Arg | Glu | Ala |
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| Gly | Asp | Val | Cys | Tyr | Ala | Asp | Val | Tyr | Arg | Asp | Gly | Thr | Gly | Val | Val |
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| Glu | Phe | Val | Arg | Lys | Glu | Asp | Met | Thr | Tyr | Ala | Val | Arg | Lys | Leu | Asp |
| | | | 165 | | | | | | 170 | | | | 175 | | |
| Asn | Thr | Lys | Phe | Arg | Ser | His | Glu | Gly | Glu | Thr | Ala | Tyr | Ile | Arg | Val |

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| Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Asn Ser Arg Ser Arg | | |
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 aaaaaaaaaa tacatttata catcaccttt ttgacttttc caagcccttt tacagctctt 3523
 ggcattttcc tcgcctaggc ctgtgaggta actgggatcg caccttttat accagagacc 3583
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<211> 583

<212> PRT

<213> Homo sapiens

<400> 64

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Glu Leu Pro Ser Pro Ser Ala Ser Ser Leu Gly Pro Ile Leu Pro Pro
35 40 45
Leu Pro Gly Asp Asp Ser Pro Thr Thr Leu Cys Ser Phe Phe Pro Arg
50 55 60
Met Ser Asn Leu Arg Leu Ala Asn Pro Ala Gly Gly Arg Pro Gly Ser
65 70 75 80
Lys Gly Glu Pro Gly Arg Ala Ala Asp Asp Gly Glu Gly Ile Asp Gly
85 90 95
Ala Ala Met Pro Glu Ser Gly Pro Leu Pro Leu Leu Gln Asp Met Asn
100 105 110
Lys Leu Ser Gly Gly Gly Gly Arg Arg Thr Arg Val Glu Gly Gly Gln
115 120 125
Leu Gly Gly Glu Glu Trp Thr Arg His Gly Ser Phe Val Asn Lys Pro
130 135 140
Thr Arg Gly Trp Leu His Pro Asn Asp Lys Val Met Gly Pro Gly Val
145 150 155 160
Ser Tyr Leu Val Arg Tyr Met Gly Cys Val Glu Val Leu Gln Ser Met
165 170 175
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180 185 190
Ser Leu Val Cys Glu Ala Val Pro Gly Ala Lys Gly Ala Thr Arg Arg
195 200 205

PH-1064PCT-US seq.TXT

Arg Lys Pro Cys Ser Arg Pro Leu Ser Ser Ile Leu Gly Arg Ser Asn
210 215 220

Leu Lys Phe Ala Gly Met Pro Ile Thr Leu Thr Val Ser Thr Ser Ser
225 230 235 240

Leu Asn Leu Met Ala Ala Asp Cys Lys Gln Ile Ile Ala Asn His His
245 250 255

Met Gln Ser Ile Ser Phe Ala Ser Gly Gly Asp Pro Asp Thr Ala Glu
260 265 270

Tyr Val Ala Tyr Val Ala Lys Asp Pro Val Asn Gln Arg Ala Cys His
275 280 285

Ile Leu Glu Cys Pro Glu Gly Leu Ala Gln Asp Val Ile Ser Thr Ile
290 295 300

Gly Gln Ala Phe Glu Leu Arg Phe Lys Gln Tyr Leu Arg Asn Pro Pro
305 310 315 320

Lys Leu Val Thr Pro His Asp Arg Met Ala Gly Phe Asp Gly Ser Ala
325 330 335

Trp Asp Glu Glu Glu Glu Glu Pro Pro Asp His Gln Tyr Tyr Asn Asp
340 345 350

Phe Pro Gly Lys Glu Pro Pro Leu Gly Gly Val Val Asp Met Arg Leu
355 360 365

Arg Glu Gly Ala Ala Pro Gly Ala Ala Arg Pro Thr Ala Pro Asn Ala
370 375 380

Gln Thr Pro Ser His Leu Gly Ala Thr Leu Pro Val Gly Gln Pro Val
385 390 395 400

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Gly Gly Asp Pro Glu Val Arg Lys Gln Met Pro Pro Pro Pro Pro Cys
405 410 415

Pro Gly Arg Glu Leu Phe Asp Asp Pro Ser Tyr Val Asn Val Gln Asn
420 425 430

Leu Asp Lys Ala Arg Gln Ala Val Gly Gly Ala Gly Pro Pro Asn Pro
435 440 445

Ala Ile Asn Gly Ser Ala Pro Arg Asp Leu Phe Asp Met Lys Pro Phe
450 455 460

Glu Asp Ala Leu Arg Val Pro Pro Pro Pro Gln Ser Val Ser Met Ala
465 470 475 480

Glu Gln Leu Arg Gly Glu Pro Trp Phe His Gly Lys Leu Ser Arg Arg
485 490 495

Glu Ala Glu Ala Leu Leu Gln Leu Asn Gly Asp Phe Leu Val Arg Glu
500 505 510

Ser Thr Thr Thr Pro Gly Gln Tyr Val Leu Thr Gly Leu Gln Ser Gly
515 520 525

Gln Pro Lys His Leu Leu Leu Val Asp Pro Glu Gly Val Val Arg Thr
530 535 540

Lys Asp His Arg Phe Glu Ser Val Ser His Leu Ile Ser Tyr His Met
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Asp Asn His Leu Pro Ile Ile Ser Ala Gly Ser Glu Leu Cys Leu Gln
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Gln Pro Val Glu Arg Lys Leu
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<212> DNA

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Leu Gly Leu Val Val Cys Leu Val Leu Trp Pro Leu His Ser Glu Gly

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20

tct gga ggg aaa ctg aca gct gtg gat cct gaa aca aac atg aat gtg 151

Ser Gly Gly Lys Leu Thr Ala Val Asp Pro Glu Thr Asn Met Asn Val

25

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35

agt gaa att atc tct tac tgg gga ttc cct agt gag gaa tac cta gtt 199

Ser Glu Ile Ile Ser Tyr Trp Gly Phe Pro Ser Glu Glu Tyr Leu Val

40

45

50

gag aca gaa gat gga tat att ctg tgc ctt aac cga att cct cat ggg 247

Glu Thr Glu Asp Gly Tyr Ile Leu Cys Leu Asn Arg Ile Pro His Gly

55

60

65

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| 70 75 80 85 | |
| cat ggc ttg ctg gca gat tct agt aac tgg gtc aca aac ctt gcc aac | 343 |
| His Gly Leu Leu Ala Asp Ser Ser Asn Trp Val Thr Asn Leu Ala Asn | |
| 90 95 100 | |
| agc agc ctg ggc ttc att ctt gct gat gct ggt ttt gac gtg tgg atg | 391 |
| Ser Ser Leu Gly Phe Ile Leu Ala Asp Ala Gly Phe Asp Val Trp Met | |
| 105 110 115 | |
| ggc aac agc aga gga aat acc tgg tct cgg aaa cat aag aca ctc tca | 439 |
| Gly Asn Ser Arg Gly Asn Thr Trp Ser Arg Lys His Lys Thr Leu Ser | |
| 120 125 130 | |
| gtt tct cag gat gaa ttc tgg gct ttc agt tat gat gag atg gca aaa | 487 |
| Val Ser Gln Asp Glu Phe Trp Ala Phe Ser Tyr Asp Glu Met Ala Lys | |
| 135 140 145 | |
| tat gac cta cca gct tcc att aac ttc att ctg aat aaa act ggc caa | 535 |
| Tyr Asp Leu Pro Ala Ser Ile Asn Phe Ile Leu Asn Lys Thr Gly Gln | |
| 150 155 160 165 | |
| gaa caa gtg tat tat gtg ggt cat tct caa ggc acc act ata ggt ttt | 583 |
| Glu Gln Val Tyr Tyr Val Gly His Ser Gln Gly Thr Thr Ile Gly Phe | |
| 170 175 180 | |
| ata gca ttt tca cag atc cct gag ctg gct aaa agg att aaa atg ttt | 631 |
| Ile Ala Phe Ser Gln Ile Pro Glu Leu Ala Lys Arg Ile Lys Met Phe | |
| 185 190 195 | |

PH-1064PCT-US seq.TXT

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      200                      205                      210

gcc aaa tta gga cga tta cca gat cat ctc att aag gac tta ttt gga 727
Ala Lys Leu Gly Arg Leu Pro Asp His Leu Ile Lys Asp Leu Phe Gly
      215                      220                      225

gac aaa gaa ttt ctt ccc cag agt gcg ttt ttg aag tgg ctg ggt acc 775
Asp Lys Glu Phe Leu Pro Gln Ser Ala Phe Leu Lys Trp Leu Gly Thr
230                      235                      240                      245

cac gtt tgc act cat gtc ata ctg aag gag ctc tgt gga aat ctc tgt 823
His Val Cys Thr His Val Ile Leu Lys Glu Leu Cys Gly Asn Leu Cys
      250                      255                      260

ttt ctt ctg tgt gga ttt aat gag aga aat tta aat atg tct aga gtg 871
Phe Leu Leu Cys Gly Phe Asn Glu Arg Asn Leu Asn Met Ser Arg Val
      265                      270                      275

gat gta tat aca aca cat tct cct gct gga act tct gtg caa aac atg 919
Asp Val Tyr Thr Thr His Ser Pro Ala Gly Thr Ser Val Gln Asn Met
      280                      285                      290

tta cac tgg agc cag gct gtt aaa ttc caa aag ttt caa gcc ttt gac 967
Leu His Trp Ser Gln Ala Val Lys Phe Gln Lys Phe Gln Ala Phe Asp
      295                      300                      305

tgg gga agc agt gcc aag aat tat ttt cat tac aac cag agt tat cct 1015
Trp Gly Ser Ser Ala Lys Asn Tyr Phe His Tyr Asn Gln Ser Tyr Pro
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Pro Thr Tyr Asn Val Lys Asp Met Leu Val Pro Thr Ala Val Trp Ser
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ggg ggt cac gac tgg ctt gca gat gtc tac gac gtc aat atc tta ctg 1111
Gly Gly His Asp Trp Leu Ala Asp Val Tyr Asp Val Asn Ile Leu Leu
          345                      350                      355

act cag atc acc aac ttg gtg ttc cat gag agc att ccg gaa tgg gag 1159
Thr Gln Ile Thr Asn Leu Val Phe His Glu Ser Ile Pro Glu Trp Glu
          360                      365                      370

cat ctt gac ttc att tgg ggc ctg gat gcc cct tgg agg ctt tat aat 1207
His Leu Asp Phe Ile Trp Gly Leu Asp Ala Pro Trp Arg Leu Tyr Asn
          375                      380                      385

aaa att att aat cta atg agg aaa tat cag tgaaagctgg acttgagctg 1257
Lys Ile Ile Asn Leu Met Arg Lys Tyr Gln
390                      395

tgtaccacca agtcaatgat tatgtcatgt gaaaatgtgt ttgcttcatt tctgtaaaac 1317
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taaagagctc tctagtctaa cgggtcttgta gttagagatc taaatgacat tttatcatgt 1737
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aaaacaaaag tatgttttaa atgctttgaa gactgataca ctcaaccatc tatattcatg 1977
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actataccac tatttttttct gagattaatg tactcttgga gcccgctact gtcggttattg 2097
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<211> 399

<212> PRT

<213> Homo sapiens

<400> 66

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20 25 30

Thr Asn Met Asn Val Ser Glu Ile Ile Ser Tyr Trp Gly Phe Pro Ser

35 40 45

Glu Glu Tyr Leu Val Glu Thr Glu Asp Gly Tyr Ile Leu Cys Leu Asn

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 50 | | 55 | | 60 | | | | | | | | | | | |
| Arg | Ile | Pro | His | Gly | Arg | Lys | Asn | His | Ser | Asp | Lys | Gly | Pro | Lys | Pro |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Val | Val | Phe | Leu | Gln | His | Gly | Leu | Leu | Ala | Asp | Ser | Ser | Asn | Trp | Val |
| | | | | 85 | | | | | | 90 | | | | | 95 |
| Thr | Asn | Leu | Ala | Asn | Ser | Ser | Leu | Gly | Phe | Ile | Leu | Ala | Asp | Ala | Gly |
| | | | 100 | | | | | | 105 | | | | | 110 | |
| Phe | Asp | Val | Trp | Met | Gly | Asn | Ser | Arg | Gly | Asn | Thr | Trp | Ser | Arg | Lys |
| | | 115 | | | | | | 120 | | | | | 125 | | |
| His | Lys | Thr | Leu | Ser | Val | Ser | Gln | Asp | Glu | Phe | Trp | Ala | Phe | Ser | Tyr |
| | 130 | | | | | | 135 | | | | | 140 | | | |
| Asp | Glu | Met | Ala | Lys | Tyr | Asp | Leu | Pro | Ala | Ser | Ile | Asn | Phe | Ile | Leu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asn | Lys | Thr | Gly | Gln | Glu | Gln | Val | Tyr | Tyr | Val | Gly | His | Ser | Gln | Gly |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Thr | Thr | Ile | Gly | Phe | Ile | Ala | Phe | Ser | Gln | Ile | Pro | Glu | Leu | Ala | Lys |
| | | 180 | | | | | | | 185 | | | | 190 | | |
| Arg | Ile | Lys | Met | Phe | Phe | Ala | Leu | Gly | Pro | Val | Ala | Ser | Val | Ala | Phe |
| | | 195 | | | | | | 200 | | | | | 205 | | |
| Cys | Thr | Ser | Pro | Met | Ala | Lys | Leu | Gly | Arg | Leu | Pro | Asp | His | Leu | Ile |
| | 210 | | | | | | 215 | | | | | 220 | | | |
| Lys | Asp | Leu | Phe | Gly | Asp | Lys | Glu | Phe | Leu | Pro | Gln | Ser | Ala | Phe | Leu |
| 225 | | | | | 230 | | | | 235 | | | | | | 240 |
| Lys | Trp | Leu | Gly | Thr | His | Val | Cys | Thr | His | Val | Ile | Leu | Lys | Glu | Leu |

PH-1064PCT-US seq.TXT

| | | |
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| 245 | 250 | 255 |
| Cys Gly Asn Leu Cys Phe Leu Leu Cys Gly Phe Asn Glu Arg Asn Leu | | |
| 260 | 265 | 270 |
| Asn Met Ser Arg Val Asp Val Tyr Thr Thr His Ser Pro Ala Gly Thr | | |
| 275 | 280 | 285 |
| Ser Val Gln Asn Met Leu His Trp Ser Gln Ala Val Lys Phe Gln Lys | | |
| 290 | 295 | 300 |
| Phe Gln Ala Phe Asp Trp Gly Ser Ser Ala Lys Asn Tyr Phe His Tyr | | |
| 305 | 310 | 315 |
| Asn Gln Ser Tyr Pro Pro Thr Tyr Asn Val Lys Asp Met Leu Val Pro | | |
| 325 | 330 | 335 |
| Thr Ala Val Trp Ser Gly Gly His Asp Trp Leu Ala Asp Val Tyr Asp | | |
| 340 | 345 | 350 |
| Val Asn Ile Leu Leu Thr Gln Ile Thr Asn Leu Val Phe His Glu Ser | | |
| 355 | 360 | 365 |
| Ile Pro Glu Trp Glu His Leu Asp Phe Ile Trp Gly Leu Asp Ala Pro | | |
| 370 | 375 | 380 |
| Trp Arg Leu Tyr Asn Lys Ile Ile Asn Leu Met Arg Lys Tyr Gln | | |
| 385 | 390 | 395 |

<210> 67

<211> 1633

<212> DNA

<213> Homo sapiens

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<222> (323)..(1177)

<400> 67

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agcagcagac aggattccag gaaccagtgt ttgatgaagc taggactgag gagcaagcga 180
gcaagcagca gttcgtggaa tcctgtctgc tgctgtcttc ctggtttagg agccgacggg 240
cgctcgcagg ctccgcgcgc gctgccgcgc gcaggacccg gccgcctccg ccgccgcgcgc 300
cgccccctaag cctcccgaag cc atg gcc ggg ctc ggc cac ccc gcc gcc ttc 352

Met Ala Gly Leu Gly His Pro Ala Ala Phe

1 5 10

ggc cgg gcc acc cac gcc gtg gtg cgg gcg cta ccc gag tcg ctc ggc 400

Gly Arg Ala Thr His Ala Val Val Arg Ala Leu Pro Glu Ser Leu Gly

15 20 25

cag cac gcg ctg aga agc gcc aag ggc gag gag gtg gac gtc gcc cgc 448

Gln His Ala Leu Arg Ser Ala Lys Gly Glu Glu Val Asp Val Ala Arg

30 35 40

gcg gaa cgg cag cac cag ctc tac gtg ggc gtg ctg ggc agc aag ctg 496

Ala Glu Arg Gln His Gln Leu Tyr Val Gly Val Leu Gly Ser Lys Leu

45 50 55

ggg ctg cag gtg gtg gag ctg ccg gcc gac gag agc ctt ccg gac tgc 544

Gly Leu Gln Val Val Glu Leu Pro Ala Asp Glu Ser Leu Pro Asp Cys

60 65 70

PH-1064PCT-US seq.TXT

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Val Phe Val Glu Asp Val Ala Val Val Cys Glu Glu Thr Ala Leu Ile
  75                      80                      85                      90
acc cga ccc ggg gcg ccg agc cgg agg aag gag gtt gac atg atg aaa      640
Thr Arg Pro Gly Ala Pro Ser Arg Arg Lys Glu Val Asp Met Met Lys
                      95                      100                      105
gaa gca tta gaa aaa ctt cag ctc aat ata gta gag atg aaa gat gaa      688
Glu Ala Leu Glu Lys Leu Gln Leu Asn Ile Val Glu Met Lys Asp Glu
                      110                      115                      120
aat gca act tta gat ggc gga gat gtt tta ttc aca ggc aga gaa ttt      736
Asn Ala Thr Leu Asp Gly Gly Asp Val Leu Phe Thr Gly Arg Glu Phe
                      125                      130                      135
ttt gtg ggc ctt tcc aaa agg aca aat caa cga ggt gct gaa atc ttg      784
Phe Val Gly Leu Ser Lys Arg Thr Asn Gln Arg Gly Ala Glu Ile Leu
                      140                      145                      150
gct gat act ttt aag gac tat gca gtc tcc aca gtg cca gtg gca gat      832
Ala Asp Thr Phe Lys Asp Tyr Ala Val Ser Thr Val Pro Val Ala Asp
155                      160                      165                      170
ggg ttg cat ttg aag agt ttc tgc agc atg gct ggg cct aac ctg atc      880
Gly Leu His Leu Lys Ser Phe Cys Ser Met Ala Gly Pro Asn Leu Ile
                      175                      180                      185
gca att ggg tct agt gaa tct gca cag aag gcc ctt aag atc atg caa      928
Ala Ile Gly Ser Ser Glu Ser Ala Gln Lys Ala Leu Lys Ile Met Gln
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Gln Met Ser Asp His Arg Tyr Asp Lys Leu Thr Val Pro Asp Asp Ile

205

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215

gca gca aac tgt ata tat cta aat atc ccc aac aaa ggg cac gtc ttg 1024

Ala Ala Asn Cys Ile Tyr Leu Asn Ile Pro Asn Lys Gly His Val Leu

220

225

230

ctg cac cga acc ccg gaa gag tat cca gaa agt gca aag gtt tat gag 1072

Leu His Arg Thr Pro Glu Glu Tyr Pro Glu Ser Ala Lys Val Tyr Glu

235

240

245

250

aaa ctg aag gac cat atg ctg atc ccc gtg agc atg tct gaa ctg gaa 1120

Lys Leu Lys Asp His Met Leu Ile Pro Val Ser Met Ser Glu Leu Glu

255

260

265

aag gtg gat ggg ctg ctc acc tgc tgc tca gtt tta att aac aag aaa 1168

Lys Val Asp Gly Leu Leu Thr Cys Cys Ser Val Leu Ile Asn Lys Lys

270

275

280

gta gac tcc tgagctgcag agtccccccc ggtagccggc aagaccgcac 1217

Val Asp Ser

285

aggcaaggcc gatgactctg tgcccactcc tgttgttttc cttgacaatc tactgtgcca 1277

ctgtgctact aactcttggt tacaaaattt gattctaagt tgaattgctt cattcaacac 1337

ccccaccctc cctccccrcg aggtggtacc taagctgtgg atttgctaaa tgaattaagc 1397

aacctagaag atacagagct aatgaattat caaatgtga ttaatcccag taaggaaaca 1457

ctcatttagt gtctgtatatt ttggtgtnaa aattatttag ttgccagtat attctgaaga 1517

atgtcttctt gatcagtcag ataagcttgc tttttttttt tttttttcat gaatcatggt 1577

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<211> 285

<212> PRT

<213> Homo sapiens

<400> 68

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 Ala Lys Gly Glu Glu Val Asp Val Ala Arg Ala Glu Arg Gln His Gln
 35 40 45
 Leu Tyr Val Gly Val Leu Gly Ser Lys Leu Gly Leu Gln Val Val Glu
 50 55 60
 Leu Pro Ala Asp Glu Ser Leu Pro Asp Cys Val Phe Val Glu Asp Val
 65 70 75 80
 Ala Val Val Cys Glu Glu Thr Ala Leu Ile Thr Arg Pro Gly Ala Pro
 85 90 95
 Ser Arg Arg Lys Glu Val Asp Met Met Lys Glu Ala Leu Glu Lys Leu
 100 105 110
 Gln Leu Asn Ile Val Glu Met Lys Asp Glu Asn Ala Thr Leu Asp Gly
 115 120 125
 Gly Asp Val Leu Phe Thr Gly Arg Glu Phe Phe Val Gly Leu Ser Lys
 130 135 140

PH-1064PCT-US seq.TXT

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Tyr | Ala | Val | Ser | Thr | Val | Pro | Val | Ala | Asp | Gly | Leu | His | Leu | Lys | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Phe | Cys | Ser | Met | Ala | Gly | Pro | Asn | Leu | Ile | Ala | Ile | Gly | Ser | Ser | Glu |
| | | | 180 | | | | | 185 | | | | | | 190 | |
| Ser | Ala | Gln | Lys | Ala | Leu | Lys | Ile | Met | Gln | Gln | Met | Ser | Asp | His | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Tyr | Asp | Lys | Leu | Thr | Val | Pro | Asp | Asp | Ile | Ala | Ala | Asn | Cys | Ile | Tyr |
| | 210 | | | | | 215 | | | | | | 220 | | | |
| Leu | Asn | Ile | Pro | Asn | Lys | Gly | His | Val | Leu | Leu | His | Arg | Thr | Pro | Glu |
| 225 | | | | 230 | | | | | 235 | | | | | | 240 |
| Glu | Tyr | Pro | Glu | Ser | Ala | Lys | Val | Tyr | Glu | Lys | Leu | Lys | Asp | His | Met |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Leu | Ile | Pro | Val | Ser | Met | Ser | Glu | Leu | Glu | Lys | Val | Asp | Gly | Leu | Leu |
| | | | 260 | | | | | 265 | | | | | | 270 | |
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<212> DNA

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gaaagaacgt tcccacctgc ctagcc atg gga gag gac gct gca cag gcc gaa 173

Met Gly Glu Asp Ala Ala Gln Ala Glu

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5

aag ttc cag cac cct ggg tct gac atg cgg cag gaa aag ccc tcg agc 221
Lys Phe Gln His Pro Gly Ser Asp Met Arg Gln Glu Lys Pro Ser Ser
10 15 20 25

ccc agc ccg atg cct tcc tcc aca cca agc ccc agc ctg aac cta ggg 269
Pro Ser Pro Met Pro Ser Ser Thr Pro Ser Pro Ser Leu Asn Leu Gly
30 35 40

aac aca gag gag gcc atc cgg gac aac tca cag gtg aac gca gtc acg 317
Asn Thr Glu Glu Ala Ile Arg Asp Asn Ser Gln Val Asn Ala Val Thr
45 50 55

gtg ctc acg ctc ctg gac aag ctg gtg aac atg cta gac gct gtg cag 365
Val Leu Thr Leu Leu Asp Lys Leu Val Asn Met Leu Asp Ala Val Gln
60 65 70

gag aac cag cac aag atg gag cag cga cag atc agt ttg gag ggc tcc 413
Glu Asn Gln His Lys Met Glu Gln Arg Gln Ile Ser Leu Glu Gly Ser
75 80 85

gtg aag ggc atc cag aat gac ctc acc aag ctc tcc aag tac cag gcc 461

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Lys | Gly | Ile | Gln | Asn | Asp | Leu | Thr | Lys | Leu | Ser | Lys | Tyr | Gln | Ala | | |
| 90 | | | | | 95 | | | | | 100 | | | | | 105 | | |
| tcc | acc | agc | aac | acg | gtg | agc | aag | ctg | ctg | gag | aag | tcc | cgc | aag | gtc | 509 | |
| Ser | Thr | Ser | Asn | Thr | Val | Ser | Lys | Leu | Leu | Glu | Lys | Ser | Arg | Lys | Val | | |
| | | | | 110 | | | | | 115 | | | | | 120 | | | |
| agc | gcc | cac | acg | cgc | gcg | gtc | aaa | gag | cgc | atg | gat | agg | cag | tgc | gca | 557 | |
| Ser | Ala | His | Thr | Arg | Ala | Val | Lys | Glu | Arg | Met | Asp | Arg | Gln | Cys | Ala | | |
| | | | 125 | | | | | 130 | | | | | 135 | | | | |
| cag | gtg | aag | cgg | ctg | gag | aac | aac | cac | gcc | cag | ctc | ctc | cga | cgc | aac | 605 | |
| Gln | Val | Lys | Arg | Leu | Glu | Asn | Asn | His | Ala | Gln | Leu | Leu | Arg | Arg | Asn | | |
| | | 140 | | | | | 145 | | | | | 150 | | | | | |
| cat | ttc | aaa | gtg | ctc | atc | ttc | cag | gag | gaa | aat | gag | atc | cct | gcc | agc | 653 | |
| His | Phe | Lys | Val | Leu | Ile | Phe | Gln | Glu | Glu | Asn | Glu | Ile | Pro | Ala | Ser | | |
| | 155 | | | | | 160 | | | | 165 | | | | | | | |
| gtg | ttt | gtg | aaa | cag | ccc | gtt | tcc | ggt | gcc | gtg | gaa | ggg | aag | gag | gag | 701 | |
| Val | Phe | Val | Lys | Gln | Pro | Val | Ser | Gly | Ala | Val | Glu | Gly | Lys | Glu | Glu | | |
| 170 | | | | 175 | | | | | | 180 | | | | 185 | | | |
| ctt | ccg | gat | gaa | aac | aaa | tcc | ctg | gag | gaa | acc | ctg | cac | acc | gtg | gac | 749 | |
| Leu | Pro | Asp | Glu | Asn | Lys | Ser | Leu | Glu | Glu | Thr | Leu | His | Thr | Val | Asp | | |
| | | | 190 | | | | | | 195 | | | | | 200 | | | |
| ctc | tcc | tca | gat | gat | gat | ttg | ccc | cac | gat | gag | gag | gcc | ctg | gaa | gac | 797 | |
| Leu | Ser | Ser | Asp | Asp | Asp | Leu | Pro | His | Asp | Glu | Glu | Ala | Leu | Glu | Asp | | |
| | | | 205 | | | | | 210 | | | | | 215 | | | | |
| agt | gcc | gag | gaa | aag | gtg | gaa | gaa | agt | agg | gca | gag | aaa | ata | aaa | aga | 845 | |

PH-1064PCT-US seq.TXT

Ser Ala Glu Glu Lys Val Glu Glu Ser Arg Ala Glu Lys Ile Lys Arg
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tcc agc ctg aag aaa gtg gat agc ctc aag aaa gca ttt tct cgc cag 893
Ser Ser Leu Lys Lys Val Asp Ser Leu Lys Lys Ala Phe Ser Arg Gln
235 240 245
aac atc gag aaa aag atg aac aag ctg ggg aca aag atc gta tct gta 941
Asn Ile Glu Lys Lys Met Asn Lys Leu Gly Thr Lys Ile Val Ser Val
250 255 260 265
gag agg aga gag aag att aag aaa tct ctc acg tca aat cac cag aaa 989
Glu Arg Arg Glu Lys Ile Lys Lys Ser Leu Thr Ser Asn His Gln Lys
270 275 280
ata tcc tca gga aaa agc tcc ccc ttc aag gtt tct ccc ctc act ttc 1037
Ile Ser Ser Gly Lys Ser Ser Pro Phe Lys Val Ser Pro Leu Thr Phe
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Gly Arg Lys Lys Val Arg Glu Gly Glu Ser His Ala Glu Asn Glu Thr
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Lys Ser Glu Asp Leu Pro Ser Ser Glu Gln Met Pro Asn Asp Gln Glu
315 320 325
gag gag tcc ttt gca gag ggt cat tcc gaa gcg tcc ctc gcc agc gct 1181
Glu Glu Ser Phe Ala Glu Gly His Ser Glu Ala Ser Leu Ala Ser Ala
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Glu Asp Glu Glu Glu Glu Ser Val Ala Leu Glu Gln Ala Gln Lys Val
380 385 390
cgc tat gag ggt agc tac gcg cta aca tcc gag gag gcg gag cgc tcc 1373
Arg Tyr Glu Gly Ser Tyr Ala Leu Thr Ser Glu Glu Ala Glu Arg Ser
395 400 405
gat ggg gac ccc gtg cag ccc gcc gtg ctc cag gtg cac cag acc tcc 1421
Asp Gly Asp Pro Val Gln Pro Ala Val Leu Gln Val His Gln Thr Ser
410 415 420 425
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<211> 425

<212> PRT

<213> Homo sapiens

PH-1064PCT-US seq.TXT

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Asp | Met | Arg | Gln | Glu | Lys | Pro | Ser | Ser | Pro | Ser | Pro | Met | Pro | Ser | Ser |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Thr | Pro | Ser | Pro | Ser | Leu | Asn | Leu | Gly | Asn | Thr | Glu | Glu | Ala | Ile | Arg |
| | | | 35 | | | | 40 | | | | | 45 | | | |
| Asp | Asn | Ser | Gln | Val | Asn | Ala | Val | Thr | Val | Leu | Thr | Leu | Leu | Asp | Lys |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Leu | Val | Asn | Met | Leu | Asp | Ala | Val | Gln | Glu | Asn | Gln | His | Lys | Met | Glu |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Gln | Arg | Gln | Ile | Ser | Leu | Glu | Gly | Ser | Val | Lys | Gly | Ile | Gln | Asn | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Thr | Lys | Leu | Ser | Lys | Tyr | Gln | Ala | Ser | Thr | Ser | Asn | Thr | Val | Ser |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Lys | Leu | Leu | Glu | Lys | Ser | Arg | Lys | Val | Ser | Ala | His | Thr | Arg | Ala | Val |
| | | | 115 | | | | 120 | | | | | 125 | | | |
| Lys | Glu | Arg | Met | Asp | Arg | Gln | Cys | Ala | Gln | Val | Lys | Arg | Leu | Glu | Asn |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | His | Ala | Gln | Leu | Leu | Arg | Arg | Asn | His | Phe | Lys | Val | Leu | Ile | Phe |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Gln | Glu | Glu | Asn | Glu | Ile | Pro | Ala | Ser | Val | Phe | Val | Lys | Gln | Pro | Val |
| | | | | 165 | | | | | 170 | | | | 175 | | |
| Ser | Gly | Ala | Val | Glu | Gly | Lys | Glu | Glu | Leu | Pro | Asp | Glu | Asn | Lys | Ser |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 180 | 185 | 190 |
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| 195 | 200 | 205 |
| Pro His Asp Glu Glu Ala Leu Glu Asp Ser Ala Glu Glu Lys Val Glu | | |
| 210 | 215 | 220 |
| Glu Ser Arg Ala Glu Lys Ile Lys Arg Ser Ser Leu Lys Lys Val Asp | | |
| 225 | 230 | 235 |
| Ser Leu Lys Lys Ala Phe Ser Arg Gln Asn Ile Glu Lys Lys Met Asn | | |
| 245 | 250 | 255 |
| Lys Leu Gly Thr Lys Ile Val Ser Val Glu Arg Arg Glu Lys Ile Lys | | |
| 260 | 265 | 270 |
| Lys Ser Leu Thr Ser Asn His Gln Lys Ile Ser Ser Gly Lys Ser Ser | | |
| 275 | 280 | 285 |
| Pro Phe Lys Val Ser Pro Leu Thr Phe Gly Arg Lys Lys Val Arg Glu | | |
| 290 | 295 | 300 |
| Gly Glu Ser His Ala Glu Asn Glu Thr Lys Ser Glu Asp Leu Pro Ser | | |
| 305 | 310 | 315 |
| Ser Glu Gln Met Pro Asn Asp Gln Glu Glu Glu Ser Phe Ala Glu Gly | | |
| 325 | 330 | 335 |
| His Ser Glu Ala Ser Leu Ala Ser Ala Leu Val Glu Gly Glu Ile Ala | | |
| 340 | 345 | 350 |
| Glu Glu Ala Ala Glu Lys Ala Thr Ser Arg Gly Ser Asn Ser Gly Met | | |
| 355 | 360 | 365 |
| Asp Ser Asn Ile Asp Leu Thr Ile Val Glu Asp Glu Glu Glu Glu Ser | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 370 | 375 | 380 |
| Val Ala Leu Glu Gln Ala Gln Lys Val Arg Tyr Glu Gly Ser Tyr Ala | | |
| 385 | 390 | 395 |
| Leu Thr Ser Glu Glu Ala Glu Arg Ser Asp Gly Asp Pro Val Gln Pro | | |
| | 405 | 410 |
| Ala Val Leu Gln Val His Gln Thr Ser | | 415 |
| | 420 | 425 |

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<212> DNA

<213> Homo sapiens

<220>

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<222> (288)..(1844)

<400> 71

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 ccagcgtgac cctgacacg tgtgtgcagc agcctgcagc tgccccaagc catggctgaa 180
 cactgactcc cagctgtggg cttcaccatt acagactccc cagggcttca aagacttctc 240
 agcttcgagc atggcttttg gctgtcaggg cagctgtaca atagtgg atg ttt gag 296

Met Phe Glu

1

acg gag gca gat gag aag agg gag atg gcc ttg gag gaa ggg aag ggg 344

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr | Glu | Ala | Asp | Glu | Lys | Arg | Glu | Met | Ala | Leu | Glu | Glu | Gly | Lys | Gly | | |
| 5 | | | | | | 10 | | | | | 15 | | | | | | |
| cct | ggt | gcc | gag | gat | tcc | cca | ccc | agc | aag | gag | ccc | tct | cct | ggc | cag | 392 | |
| Pro | Gly | Ala | Glu | Asp | Ser | Pro | Pro | Ser | Lys | Glu | Pro | Ser | Pro | Gly | Gln | | |
| 20 | | | | | 25 | | | | | 30 | | | | | 35 | | |
| gag | ctt | cct | cca | gga | caa | gac | ctt | cca | ccc | aac | aag | gac | tcc | cct | tct | 440 | |
| Glu | Leu | Pro | Pro | Gly | Gln | Asp | Leu | Pro | Pro | Asn | Lys | Asp | Ser | Pro | Ser | | |
| | | | | 40 | | | | 45 | | | | | | 50 | | | |
| ggg | cag | gaa | ccc | gct | ccc | agc | caa | gaa | cca | ctg | tcc | agc | aaa | gac | tca | 488 | |
| Gly | Gln | Glu | Pro | Ala | Pro | Ser | Gln | Glu | Pro | Leu | Ser | Ser | Lys | Asp | Ser | | |
| | | | 55 | | | | | 60 | | | | | | 65 | | | |
| gct | acc | tct | gaa | gga | tcc | cct | cca | ggc | cca | gat | gct | ccg | ccc | agc | aag | 536 | |
| Ala | Thr | Ser | Glu | Gly | Ser | Pro | Pro | Gly | Pro | Asp | Ala | Pro | Pro | Ser | Lys | | |
| | | 70 | | | | | | 75 | | | | | | 80 | | | |
| gat | gtg | cca | cca | tgc | cag | gaa | ccc | cct | cca | gcc | caa | gac | ctc | tca | ccc | 584 | |
| Asp | Val | Pro | Pro | Cys | Gln | Glu | Pro | Pro | Pro | Ala | Gln | Asp | Leu | Ser | Pro | | |
| | | 85 | | | | | | 90 | | | | | | 95 | | | |
| tgc | cag | gac | cta | cct | gct | ggt | caa | gaa | ccc | ctg | cct | cac | cag | gac | cct | 632 | |
| Cys | Gln | Asp | Leu | Pro | Ala | Gly | Gln | Glu | Pro | Leu | Pro | His | Gln | Asp | Pro | | |
| 100 | | | | | 105 | | | | | 110 | | | | 115 | | | |
| cta | ctc | acc | aaa | gac | ctc | cct | gcc | atc | cag | gaa | tcc | ccc | acc | cg | gac | 680 | |
| Leu | Leu | Thr | Lys | Asp | Leu | Pro | Ala | Ile | Gln | Glu | Ser | Pro | Thr | Arg | Asp | | |
| | | | | 120 | | | | 125 | | | | | | 130 | | | |
| ctt | cca | ccc | tgt | caa | gat | ctg | cct | cct | agc | cag | gtc | tcc | ctg | cca | gcc | 728 | |

PH-1064PCT-US seq.TXT

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aag gcc ctt act gag gac acc atg agc tcc ggg gac cta cta gca gct 776
Lys Ala Leu Thr Glu Asp Thr Met Ser Ser Gly Asp Leu Leu Ala Ala
      150              155              160
act ggg gac cca cct gcg gcc ccc agg cca gcc ttc gtg atc cct gag 824
Thr Gly Asp Pro Pro Ala Ala Pro Arg Pro Ala Phe Val Ile Pro Glu
      165              170              175
gtc cgg ctg gat agc acc tac agc cag aag gca ggg gca gag cag ggc 872
Val Arg Leu Asp Ser Thr Tyr Ser Gln Lys Ala Gly Ala Glu Gln Gly
      180              185              190              195
tgc tcg gga gat gag gag gat gca gaa gag gcc gag gag gtg gag gag 920
Cys Ser Gly Asp Glu Glu Asp Ala Glu Glu Ala Glu Glu Val Glu Glu
      200              205              210
ggg gag gaa ggg gag gag gac gag gat gag gac acc agc gat gac aac 968
Gly Glu Glu Gly Glu Glu Asp Glu Asp Glu Asp Thr Ser Asp Asp Asn
      215              220              225
tac gga gag cgc agt gag gcc aag cgc agc agc atg atc gag acg ggc 1016
Tyr Gly Glu Arg Ser Glu Ala Lys Arg Ser Ser Met Ile Glu Thr Gly
      230              235              240
cag ggg gct gag ggt ggc ctc tca ctg cgt gtg cag aac tcg ctg cgg 1064
Gln Gly Ala Glu Gly Gly Leu Ser Leu Arg Val Gln Asn Ser Leu Arg
      245              250              255
cgc cgg acg cac agc gag ggc agc ctg ctg cag gag ccc cga ggg ccc 1112

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PH-1064PCT-US seq.TXT

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Arg | Arg | Thr | His | Ser | Glu | Gly | Ser | Leu | Leu | Gln | Glu | Pro | Arg | Gly | Pro | | |
| 260 | | | | | 265 | | | | | 270 | | | | | 275 | | |
| tgc | ttt | gcc | tcc | gac | acc | acc | ttg | cac | tgc | tca | gac | ggt | gag | ggc | gcc | 1160 | |
| Cys | Phe | Ala | Ser | Asp | Thr | Thr | Leu | His | Cys | Ser | Asp | Gly | Glu | Gly | Ala | | |
| | | | | 280 | | | | | 285 | | | | | 290 | | | |
| gcc | tcc | acc | tgg | ggc | atg | cct | tcg | ccc | agc | acc | ctc | aag | aaa | gag | ctg | 1208 | |
| Ala | Ser | Thr | Trp | Gly | Met | Pro | Ser | Pro | Ser | Thr | Leu | Lys | Lys | Glu | Leu | | |
| | | | | 295 | | | | | 300 | | | | | 305 | | | |
| ggc | cgc | aat | ggt | ggc | tcc | atg | cac | cac | ctt | tcc | ctc | ttc | ttc | aca | gga | 1256 | |
| Gly | Arg | Asn | Gly | Gly | Ser | Met | His | His | Leu | Ser | Leu | Phe | Phe | Thr | Gly | | |
| | | | | 310 | | | | | 315 | | | | | 320 | | | |
| cac | agg | aag | atg | agc | ggg | gct | gac | acc | gtt | ggg | gat | gat | gac | gaa | gcc | 1304 | |
| His | Arg | Lys | Met | Ser | Gly | Ala | Asp | Thr | Val | Gly | Asp | Asp | Asp | Glu | Ala | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| tcc | cgg | aag | aga | aag | agc | aaa | aac | cta | gcc | aag | gac | atg | aag | aac | aag | 1352 | |
| Ser | Arg | Lys | Arg | Lys | Ser | Lys | Asn | Leu | Ala | Lys | Asp | Met | Lys | Asn | Lys | | |
| 340 | | | | | 345 | | | | | 350 | | | | 355 | | | |
| ctg | ggg | atc | ttc | aga | cgg | cgg | aat | gag | tcc | cct | gga | gcc | cct | ccc | gcg | 1400 | |
| Leu | Gly | Ile | Phe | Arg | Arg | Arg | Asn | Glu | Ser | Pro | Gly | Ala | Pro | Pro | Ala | | |
| | | | | 360 | | | | | 365 | | | | | 370 | | | |
| ggc | aag | gca | gac | aaa | atg | atg | aag | tca | ttc | aag | ccc | acc | tca | gag | gaa | 1448 | |
| Gly | Lys | Ala | Asp | Lys | Met | Met | Lys | Ser | Phe | Lys | Pro | Thr | Ser | Glu | Glu | | |
| | | | | 375 | | | | | 380 | | | | | 385 | | | |
| gcc | ctc | aag | tgg | ggc | gag | tcc | ttg | gag | aag | ctg | ctg | gtt | cac | aaa | tac | 1496 | |

Ala Leu Lys Trp Gly Glu Ser Leu Glu Lys Leu Leu Val His Lys Tyr

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Ser Pro Pro Leu

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aggcccaggc tactggagga gtagaaggat gggccccgtg ggggtccccac tgccccggta 2064
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<210> 72

<211> 519

<212> PRT

<213> Homo sapiens

<400> 72

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Pro Gly Gln Glu Leu Pro Pro Gly Gln Asp Leu Pro Pro Asn Lys Asp

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PH-1064PCT-US seq.TXT

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| Lys Asp Ser Ala Thr Ser Glu Gly Ser Pro Pro Gly Pro Asp Ala Pro | | |
| 65 | 70 | 75 |
| Pro Ser Lys Asp Val Pro Pro Cys Gln Glu Pro Pro Pro Ala Gln Asp | | |
| 85 | 90 | 95 |
| Leu Ser Pro Cys Gln Asp Leu Pro Ala Gly Gln Glu Pro Leu Pro His | | |
| 100 | 105 | 110 |
| Gln Asp Pro Leu Leu Thr Lys Asp Leu Pro Ala Ile Gln Glu Ser Pro | | |
| 115 | 120 | 125 |
| Thr Arg Asp Leu Pro Pro Cys Gln Asp Leu Pro Pro Ser Gln Val Ser | | |
| 130 | 135 | 140 |
| Leu Pro Ala Lys Ala Leu Thr Glu Asp Thr Met Ser Ser Gly Asp Leu | | |
| 145 | 150 | 155 |
| Leu Ala Ala Thr Gly Asp Pro Pro Ala Ala Pro Arg Pro Ala Phe Val | | |
| 165 | 170 | 175 |
| Ile Pro Glu Val Arg Leu Asp Ser Thr Tyr Ser Gln Lys Ala Gly Ala | | |
| 180 | 185 | 190 |
| Glu Gln Gly Cys Ser Gly Asp Glu Glu Asp Ala Glu Glu Ala Glu Glu | | |
| 195 | 200 | 205 |
| Val Glu Glu Gly Glu Glu Gly Glu Glu Asp Glu Asp Glu Asp Thr Ser | | |
| 210 | 215 | 220 |
| Asp Asp Asn Tyr Gly Glu Arg Ser Glu Ala Lys Arg Ser Ser Met Ile | | |

PH-1064PCT-US seq.TXT

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| | 245 | 250 | 255 |
| Ser Leu Arg Arg Arg Thr His Ser Glu Gly Ser Leu Leu Gln Glu Pro | | | |
| | 260 | 265 | 270 |
| Arg Gly Pro Cys Phe Ala Ser Asp Thr Thr Leu His Cys Ser Asp Gly | | | |
| | 275 | 280 | 285 |
| Glu Gly Ala Ala Ser Thr Trp Gly Met Pro Ser Pro Ser Thr Leu Lys | | | |
| | 290 | 295 | 300 |
| Lys Glu Leu Gly Arg Asn Gly Gly Ser Met His His Leu Ser Leu Phe | | | |
| 305 | 310 | 315 | 320 |
| Phe Thr Gly His Arg Lys Met Ser Gly Ala Asp Thr Val Gly Asp Asp | | | |
| | 325 | 330 | 335 |
| Asp Glu Ala Ser Arg Lys Arg Lys Ser Lys Asn Leu Ala Lys Asp Met | | | |
| | 340 | 345 | 350 |
| Lys Asn Lys Leu Gly Ile Phe Arg Arg Arg Asn Glu Ser Pro Gly Ala | | | |
| | 355 | 360 | 365 |
| Pro Pro Ala Gly Lys Ala Asp Lys Met Met Lys Ser Phe Lys Pro Thr | | | |
| | 370 | 375 | 380 |
| Ser Glu Glu Ala Leu Lys Trp Gly Glu Ser Leu Glu Lys Leu Leu Val | | | |
| 385 | 390 | 395 | 400 |
| His Lys Tyr Gly Leu Ala Val Phe Gln Ala Phe Leu Arg Thr Glu Phe | | | |
| | 405 | 410 | 415 |
| Ser Glu Glu Asn Leu Glu Phe Trp Leu Ala Cys Glu Asp Phe Lys Lys | | | |

PH-1064PCT-US seq.TXT

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Glu Tyr Ile Ala Ile Gln Ala Cys Lys Glu Val Asn Leu Asp Ser Tyr

          450              455              460
Thr Arg Glu His Thr Lys Asp Asn Leu Gln Ser Val Thr Arg Gly Cys

          465              470              475              480
Phe Asp Leu Ala Gln Lys Arg Ile Phe Gly Leu Met Glu Lys Asp Ser

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Lys Lys Met Ser Pro Pro Leu

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<210> 73

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<222> (250)..(1206)

<400> 73

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PH-1064PCT-US seq.TXT

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Gly Glu Tyr Glu Ala Ala Val Thr Leu Glu Lys Gln Glu Asp Leu Lys
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Thr Leu Leu Ala His Pro Val Thr Leu Gly Glu Gln Gln Trp Lys Ser
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Glu Lys Gln Arg Glu Ala Glu Leu Pro Lys Lys Lys Leu Glu Gln Arg
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Ser Lys Leu Glu Asn Leu Glu Asp Leu Glu Ile Ile Ile Gln Leu Lys
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Glu Pro Glu Ile Ile Thr Glu Pro Val Asp Val Pro Thr Phe Leu Lys

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255 260 265 270
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Leu Ile Met Tyr Gly Ala Asp Leu Asn Ile Lys Asn Cys Ala Gly Lys
275 280 285
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| Asn | Gly | Glu | Ala | Gly | Glu | Phe | Leu | Pro | Glu | Asp | Phe | Arg | Asp | Gly | Glu |
| | | | | 20 | | | | 25 | | | | | 30 | | |
| Tyr | Glu | Ala | Ala | Val | Thr | Leu | Glu | Lys | Gln | Glu | Asp | Leu | Lys | Thr | Leu |
| | | | | 35 | | | | 40 | | | | | 45 | | |
| Leu | Ala | His | Pro | Val | Thr | Leu | Gly | Glu | Gln | Gln | Trp | Lys | Ser | Glu | Lys |
| | | | | 50 | | | | 55 | | | | 60 | | | |
| Gln | Arg | Glu | Ala | Glu | Leu | Pro | Lys | Lys | Lys | Leu | Glu | Gln | Arg | Ser | Lys |
| | | | | 65 | | | 70 | | | 75 | | | | 80 | |
| Leu | Glu | Asn | Leu | Glu | Asp | Leu | Glu | Ile | Ile | Ile | Gln | Leu | Lys | Lys | Arg |
| | | | | 85 | | | | 90 | | | | | 95 | | |
| Lys | Lys | Tyr | Arg | Lys | Thr | Lys | Val | Pro | Val | Val | Lys | Glu | Pro | Glu | Pro |
| | | | | 100 | | | | 105 | | | | | 110 | | |
| Glu | Ile | Ile | Thr | Glu | Pro | Val | Asp | Val | Pro | Thr | Phe | Leu | Lys | Ala | Ala |
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 Ala Gln Ile Glu Phe Arg Asp Met Leu Glu Ser Thr Ala Ile His Trp
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 Ala Ser Arg Gly Gly Asn Leu Asp Val Leu Lys Leu Leu Leu Asn Lys
 195 200 205
 Gly Ala Lys Ile Ser Ala Arg Asp Lys Leu Leu Ser Thr Ala Leu His
 210 215 220
 Val Ala Val Arg Thr Gly His Tyr Glu Cys Ala Glu His Leu Ile Ala
 225 230 235 240
 Cys Glu Ala Asp Leu Asn Ala Lys Asp Arg Glu Gly Asp Thr Pro Leu
 245 250 255
 His Asp Ala Val Arg Leu Asn Arg Tyr Lys Met Ile Arg Leu Leu Ile
 260 265 270
 Met Tyr Gly Ala Asp Leu Asn Ile Lys Asn Cys Ala Gly Lys Thr Pro
 275 280 285
 Met Asp Leu Val Leu His Trp Gln Asn Gly Thr Lys Ala Ile Phe Asp
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atg ggg ctt ctc cag ttg cta gct ttc agt ttc tta gcc ctg tgc aga    165
Met Gly Leu Leu Gln Leu Leu Ala Phe Ser Phe Leu Ala Leu Cys Arg
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gcc cga gtg cgc gct cag gaa ccc gag ttc agc tac ggc tgc gca gaa    213
Ala Arg Val Arg Ala Gln Glu Pro Glu Phe Ser Tyr Gly Cys Ala Glu
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ggc agc tgc tat ccc gcc acg ggc gac ctt ctc atc ggc cga gca cag    261
Gly Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Ile Gly Arg Ala Gln
              35             40             45
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Lys Leu Ser Val Thr Ser Thr Cys Gly Leu His Lys Pro Glu Pro Tyr
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| tcc | caa | gat | cct | tat | cat | gag | acc | ctg | aat | cct | gac | agc | cat | ctc | att | 405 |
| Ser | Gln | Asp | Pro | Tyr | His | Glu | Thr | Leu | Asn | Pro | Asp | Ser | His | Leu | Ile | |
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| Glu | Asn | Val | Val | Thr | Thr | Phe | Ala | Pro | Asn | Arg | Leu | Lys | Ile | Trp | Trp | |
| | | | | 100 | | | | | 105 | | | | | 110 | | |
| caa | tct | gaa | aat | ggt | gtg | gaa | aat | gta | act | atc | caa | ctg | gat | ttg | gaa | 501 |
| Gln | Ser | Glu | Asn | Gly | Val | Glu | Asn | Val | Thr | Ile | Gln | Leu | Asp | Leu | Glu | |
| | | | | 115 | | | | | 120 | | | | | 125 | | |
| gca | gaa | ttc | cat | ttt | act | cat | ctc | ata | atg | act | ttc | aag | aca | ttc | cgt | 549 |
| Ala | Glu | Phe | His | Phe | Thr | His | Leu | Ile | Met | Thr | Phe | Lys | Thr | Phe | Arg | |
| | | | | 130 | | | | | 135 | | | | | 140 | | |
| cca | gct | gct | atg | ctg | ata | gaa | cga | tcg | tcc | gac | ttt | ggg | aaa | acc | tgg | 597 |
| Pro | Ala | Ala | Met | Leu | Ile | Glu | Arg | Ser | Ser | Asp | Phe | Gly | Lys | Thr | Trp | |
| | | | | 145 | | | | | 150 | | | | | 155 | | 160 |
| ggt | gtg | tat | aga | tac | ttc | gcc | tat | gac | tgt | gag | gcc | tcg | ttt | cca | ggc | 645 |
| Gly | Val | Tyr | Arg | Tyr | Phe | Ala | Tyr | Asp | Cys | Glu | Ala | Ser | Phe | Pro | Gly | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| att | tca | act | ggc | ccc | atg | aaa | aaa | gtc | gat | gac | ata | att | tgt | gat | tct | 693 |
| Ile | Ser | Thr | Gly | Pro | Met | Lys | Lys | Val | Asp | Asp | Ile | Ile | Cys | Asp | Ser | |
| | | | | 180 | | | | | 185 | | | | | 190 | | |
| cga | tat | tct | gac | att | gaa | ccc | tca | act | gaa | gga | gag | gtg | ata | ttt | cgt | 741 |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
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| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| gct | tta | gat | cct | gct | ttc | aaa | ata | gaa | gat | cct | tat | agc | cca | agg | ata | 789 | |
| Ala | Leu | Asp | Pro | Ala | Phe | Lys | Ile | Glu | Asp | Pro | Tyr | Ser | Pro | Arg | Ile | | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| cag | aat | tta | tta | aaa | att | acc | aac | ttg | aga | atc | aag | ttt | gtg | aaa | ctg | 837 | |
| Gln | Asn | Leu | Leu | Lys | Ile | Thr | Asn | Leu | Arg | Ile | Lys | Phe | Val | Lys | Leu | | |
| | | 225 | | | | | 230 | | | | | 235 | | | 240 | | |
| cat | act | ttg | gga | gat | aac | ctt | ctg | gat | tcc | agg | atg | gaa | atc | aga | gaa | 885 | |
| His | Thr | Leu | Gly | Asp | Asn | Leu | Leu | Asp | Ser | Arg | Met | Glu | Ile | Arg | Glu | | |
| | | | | | | | 245 | | | | | 250 | | | 255 | | |
| aag | tat | tat | tat | gca | gtt | tat | gat | atg | gtg | gtt | cga | gga | aat | tgc | ttc | 933 | |
| Lys | Tyr | Tyr | Tyr | Ala | Val | Tyr | Asp | Met | Val | Val | Arg | Gly | Asn | Cys | Phe | | |
| | | | | | | | 260 | | | | | 265 | | | 270 | | |
| tgc | tat | ggc | cat | gcc | agc | gaa | tgt | gcc | cct | gtg | gat | gga | ttc | aat | gaa | 981 | |
| Cys | Tyr | Gly | His | Ala | Ser | Glu | Cys | Ala | Pro | Val | Asp | Gly | Phe | Asn | Glu | | |
| | | | | | | | 275 | | | | | 280 | | | 285 | | |
| gaa | gtg | gaa | gga | atg | gtt | cac | gga | cac | tgc | atg | tgc | agg | cat | aac | acc | 1029 | |
| Glu | Val | Glu | Gly | Met | Val | His | Gly | His | Cys | Met | Cys | Arg | His | Asn | Thr | | |
| | | | | | | | 290 | | | | | 295 | | | 300 | | |
| aag | ggc | tta | aac | tgt | gaa | ctc | tgc | atg | gat | ttc | tac | cat | gat | tta | cct | 1077 | |
| Lys | Gly | Leu | Asn | Cys | Glu | Leu | Cys | Met | Asp | Phe | Tyr | His | Asp | Leu | Pro | | |
| | | | | | | | 305 | | | | | 310 | | | 315 | | |
| 305 | | | | | | | | | | | | | | | 320 | | |
| tgg | aga | cct | gct | gaa | ggc | cga | aac | agc | aac | gcc | tgt | aaa | aaa | tgt | aac | 1125 | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
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| | | | | 325 | | | | | 330 | | | | | 335 | | |
| tgc | aat | gaa | cat | tcc | atc | tct | tgt | cac | ttt | gac | atg | gct | ggt | tac | ctg | 1173 |
| Cys | Asn | Glu | His | Ser | Ile | Ser | Cys | His | Phe | Asp | Met | Ala | Val | Tyr | Leu | |
| | | | | 340 | | | | | 345 | | | | | 350 | | |
| gcc | acg | ggg | aac | gtc | agc | gga | ggc | gtg | tgt | gat | gac | tgt | cag | cac | aac | 1221 |
| Ala | Thr | Gly | Asn | Val | Ser | Gly | Gly | Val | Cys | Asp | Asp | Cys | Gln | His | Asn | |
| | | | | 355 | | | | | 360 | | | | | 365 | | |
| acc | atg | ggg | cgc | aac | tgt | gag | cag | tgc | aag | ccg | ttt | tac | tac | cag | cac | 1269 |
| Thr | Met | Gly | Arg | Asn | Cys | Glu | Gln | Cys | Lys | Pro | Phe | Tyr | Tyr | Gln | His | |
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| cca | gag | agg | gac | atc | cga | gat | cct | aat | ttc | tgt | gaa | cga | tgt | acg | tgt | 1317 |
| Pro | Glu | Arg | Asp | Ile | Arg | Asp | Pro | Asn | Phe | Cys | Glu | Arg | Cys | Thr | Cys | |
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| gac | cca | gct | ggc | tct | caa | aat | gag | gga | att | tgt | gac | agc | tat | act | gat | 1365 |
| Asp | Pro | Ala | Gly | Ser | Gln | Asn | Glu | Gly | Ile | Cys | Asp | Ser | Tyr | Thr | Asp | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| ttt | tct | act | ggt | ctc | att | gct | ggc | cag | tgt | cgg | tgt | aaa | tta | aat | gtg | 1413 |
| Phe | Ser | Thr | Gly | Leu | Ile | Ala | Gly | Gln | Cys | Arg | Cys | Lys | Leu | Asn | Val | |
| | | | | 420 | | | | | 425 | | | | | 430 | | |
| gaa | gga | gaa | cat | tgt | gat | ggt | tgc | aaa | gaa | ggc | ttc | tat | gat | tta | agc | 1461 |
| Glu | Gly | Glu | His | Cys | Asp | Val | Cys | Lys | Glu | Gly | Phe | Tyr | Asp | Leu | Ser | |
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| agt | gaa | gat | cca | ttt | ggt | tgt | aaa | tct | tgt | gct | tgc | aat | cct | ctg | gga | 1509 |

Ser Glu Asp Pro Phe Gly Cys Lys Ser Cys Ala Cys Asn Pro Leu Gly

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| | | | | | | | | | | | | | | | | | | |
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| Glu | Gly | Ala | Tyr | Leu | Glu | Phe | Phe | Ile | Asp | Asn | Ile | Pro | Tyr | Ser | Met | | | |
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| Glu | Tyr | Asp | Ile | Leu | Ile | Arg | Tyr | Glu | Pro | Gln | Leu | Pro | Asp | His | Trp | | | |
| | | | 610 | | | | | | 615 | | | | | | 620 | | | |
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| Glu | Lys | Ala | Val | Ile | Thr | Val | Gln | Arg | Pro | Gly | Arg | Ile | Pro | Thr | Ser | | | |
| 625 | | | | | | 630 | | | | | | 635 | | | | | | 640 |
| agc | cga | tgt | ggg | aat | acc | atc | ccc | gat | gat | gac | aac | cag | gtg | gtg | tca | 2085 | | |
| Ser | Arg | Cys | Gly | Asn | Thr | Ile | Pro | Asp | Asp | Asp | Asn | Gln | Val | Val | Ser | | | |
| | | | 645 | | | | | | 650 | | | | | | 655 | | | |
| tta | tca | cca | ggc | tca | aga | tat | gtc | gtc | ctt | cct | cgg | ccg | gtg | tgc | ttt | 2133 | | |
| Leu | Ser | Pro | Gly | Ser | Arg | Tyr | Val | Val | Leu | Pro | Arg | Pro | Val | Cys | Phe | | | |
| | | | 660 | | | | | | 665 | | | | | | 670 | | | |
| gag | aag | gga | aca | aac | tac | acg | gtg | agg | ttg | gag | ctg | cct | cag | tac | acc | 2181 | | |
| Glu | Lys | Gly | Thr | Asn | Tyr | Thr | Val | Arg | Leu | Glu | Leu | Pro | Gln | Tyr | Thr | | | |
| | | | 675 | | | | | | 680 | | | | | | 685 | | | |
| tcc | tct | gat | agc | gac | gtg | gag | agc | ccc | tac | acg | ctg | atc | gat | tct | ctt | 2229 | | |
| Ser | Ser | Asp | Ser | Asp | Val | Glu | Ser | Pro | Tyr | Thr | Leu | Ile | Asp | Ser | Leu | | | |
| | | | 690 | | | | | | 695 | | | | | | 700 | | | |
| gtt | ctc | atg | cca | tac | tgt | aaa | tca | ctg | gac | atc | ttc | acc | gtg | gga | ggg | 2277 | | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Val | Leu | Met | Pro | Tyr | Cys | Lys | Ser | Leu | Asp | Ile | Phe | Thr | Val | Gly | Gly | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| tca | gga | gat | ggg | gtg | gtc | acc | aac | agt | gcc | tgg | gaa | acc | ttt | cag | aga | 2325 | |
| Ser | Gly | Asp | Gly | Val | Val | Thr | Asn | Ser | Ala | Trp | Glu | Thr | Phe | Gln | Arg | | |
| | | | 725 | | | | | | 730 | | | | | 735 | | | |
| tac | cga | tgt | cta | gag | aac | agc | aga | agc | gtt | gtg | aaa | aca | ccg | atg | aca | 2373 | |
| Tyr | Arg | Cys | Leu | Glu | Asn | Ser | Arg | Ser | Val | Val | Lys | Thr | Pro | Met | Thr | | |
| | | | 740 | | | | | | 745 | | | | | 750 | | | |
| gat | gtt | tgc | aga | aac | atc | atc | ttt | agc | att | tct | gcc | ctg | tta | cac | cag | 2421 | |
| Asp | Val | Cys | Arg | Asn | Ile | Ile | Phe | Ser | Ile | Ser | Ala | Leu | Leu | His | Gln | | |
| | | | 755 | | | | | | 760 | | | | | 765 | | | |
| aca | ggc | ctg | gct | tgt | gaa | tgc | gac | cct | cag | ggc | tcg | tta | agt | tcc | gtg | 2469 | |
| Thr | Gly | Leu | Ala | Cys | Glu | Cys | Asp | Pro | Gln | Gly | Ser | Leu | Ser | Ser | Val | | |
| | | | 770 | | | | | | 775 | | | | | 780 | | | |
| tgt | gat | ccc | aac | gga | ggc | cag | tgc | cag | tgc | cgg | ccc | aac | gtg | gtt | gga | 2517 | |
| Cys | Asp | Pro | Asn | Gly | Gly | Gln | Cys | Gln | Cys | Arg | Pro | Asn | Val | Val | Gly | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| aga | acc | tgc | aac | aga | tgt | gca | cct | gga | act | ttt | ggc | ttt | ggc | ccc | agt | 2565 | |
| Arg | Thr | Cys | Asn | Arg | Cys | Ala | Pro | Gly | Thr | Phe | Gly | Phe | Gly | Pro | Ser | | |
| | | | | | 805 | | | | | 810 | | | | | 815 | | |
| gga | tgc | aaa | cct | tgt | gag | tgc | cat | ctg | caa | gga | tct | gtc | aat | gcc | ttc | 2613 | |
| Gly | Cys | Lys | Pro | Cys | Glu | Cys | His | Leu | Gln | Gly | Ser | Val | Asn | Ala | Phe | | |
| | | | | | 820 | | | | | 825 | | | | | 830 | | |
| tgc | aat | ccc | gtc | act | ggc | cag | tgc | cac | tgt | ttc | cag | gga | gtg | tat | gct | 2661 | |

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835

840

845

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Arg Gln Cys Asp Arg Cys Leu Pro Gly His Trp Gly Phe Pro Ser Cys

850

855

860

cag ccc tgc cag tgc aat ggc cac gcc gat gac tgc gac cca gtg act 2757

Gln Pro Cys Gln Cys Asn Gly His Ala Asp Asp Cys Asp Pro Val Thr

865

870

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880

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885

890

895

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900

905

910

cac tgc cgc cct tgc cct tgc cca gat ggt ccc gac agt gga cgc cag 2901

His Cys Arg Pro Cys Pro Cys Pro Asp Gly Pro Asp Ser Gly Arg Gln

915

920

925

ttt gcc agg agc tgc tac caa gat cct gtt act tta cag ctt gcc tgt 2949

Phe Ala Arg Ser Cys Tyr Gln Asp Pro Val Thr Leu Gln Leu Ala Cys

930

935

940

gtt tgt gat cct gga tac att ggt tcc aga tgt gac gac tgt gcc tca 2997

Val Cys Asp Pro Gly Tyr Ile Gly Ser Arg Cys Asp Asp Cys Ala Ser

945

950

955

960

gga tac ttt ggc aat cca tca gaa gtt ggg ggg tcg tgt cag cct tgc 3045

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| | |
|---|------|
| Gly Tyr Phe Gly Asn Pro Ser Glu Val Gly Gly Ser Cys Gln Pro Cys | |
| 965 | 970 |
| 975 | |
| cag tgt cac aac aac att gac acg aca gac cca gaa gcc tgt gac aag | 3093 |
| Gln Cys His Asn Asn Ile Asp Thr Thr Asp Pro Glu Ala Cys Asp Lys | |
| 980 | 985 |
| 990 | |
| gag act ggg agg tgt ctc aag tgc ctg tac cac acg gaa ggg gaa cac | 3141 |
| Glu Thr Gly Arg Cys Leu Lys Cys Leu Tyr His Thr Glu Gly Glu His | |
| 995 | 1000 |
| 1005 | |
| tgt cag ttc tgc cgg ttt gga tac tat ggt gat gcc ctc cgg cag gac | 3189 |
| Cys Gln Phe Cys Arg Phe Gly Tyr Tyr Gly Asp Ala Leu Arg Gln Asp | |
| 1010 | 1015 |
| 1020 | |
| tgt cga aag tgt gtc tgt aat tac ctg ggc acc gtg caa gag cac tgt | 3237 |
| Cys Arg Lys Cys Val Cys Asn Tyr Leu Gly Thr Val Gln Glu His Cys | |
| 1025 | 1030 |
| 1035 | 1040 |
| aac ggc tct gac tgc cag tgc gac aaa gcc act ggt cag tgc ttg tgt | 3285 |
| Asn Gly Ser Asp Cys Gln Cys Asp Lys Ala Thr Gly Gln Cys Leu Cys | |
| 1045 | 1050 |
| 1055 | |
| ctt cct aat gtg atc ggg cag aac tgt gac cgc tgt gcg ccc aat acc | 3333 |
| Leu Pro Asn Val Ile Gly Gln Asn Cys Asp Arg Cys Ala Pro Asn Thr | |
| 1060 | 1065 |
| 1070 | |
| tgg cag ctg gcc agt ggc act ggc tgt gac cca tgc aac tgc aat gct | 3381 |
| Trp Gln Leu Ala Ser Gly Thr Gly Cys Asp Pro Cys Asn Cys Asn Ala | |
| 1075 | 1080 |
| 1085 | |
| gct cat tcc ttc ggg cca tct tgc aat gag ttc acg ggg cag tgc cag | 3429 |

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| | | | | | | | | | | | | | | | | | |
|------|-----|-----|------|-----|------|------|-----|-----|------|-----|-----|------|-----|------|------|------|--|
| Ala | His | Ser | Phe | Gly | Pro | Ser | Cys | Asn | Glu | Phe | Thr | Gly | Gln | Cys | Gln | | |
| 1090 | | | | | | 1095 | | | | | | 1100 | | | | | |
| tgc | atg | cct | ggg | ttt | gga | ggc | cgc | acc | tgc | agc | gag | tgc | cag | gaa | ctc | 3477 | |
| Cys | Met | Pro | Gly | Phe | Gly | Gly | Arg | Thr | Cys | Ser | Glu | Cys | Gln | Glu | Leu | | |
| 1105 | | | | | 1110 | | | | | | | 1115 | | | 1120 | | |
| ttc | tgg | gga | gac | ccc | gac | gtg | gag | tgc | cga | gcc | tgt | gac | tgt | gac | ccc | 3525 | |
| Phe | Trp | Gly | Asp | Pro | Asp | Val | Glu | Cys | Arg | Ala | Cys | Asp | Cys | Asp | Pro | | |
| | | | 1125 | | | | | | 1130 | | | | | 1135 | | | |
| agg | ggc | att | gag | acg | cca | cag | tgt | gac | cag | tcc | acg | ggc | cag | tgt | gtc | 3573 | |
| Arg | Gly | Ile | Glu | Thr | Pro | Gln | Cys | Asp | Gln | Ser | Thr | Gly | Gln | Cys | Val | | |
| | | | 1140 | | | | | | 1145 | | | | | 1150 | | | |
| tgc | gtt | gag | ggt | gtt | gag | ggt | cca | cgc | tgt | gac | aag | tgc | acg | cga | ggg | 3621 | |
| Cys | Val | Glu | Gly | Val | Glu | Gly | Pro | Arg | Cys | Asp | Lys | Cys | Thr | Arg | Gly | | |
| | | | 1155 | | | | | | 1160 | | | | | 1165 | | | |
| tac | tcg | ggg | gtc | ttc | cct | gac | tgc | aca | ccc | tgc | cac | cag | tgc | ttt | gct | 3669 | |
| Tyr | Ser | Gly | Val | Phe | Pro | Asp | Cys | Thr | Pro | Cys | His | Gln | Cys | Phe | Ala | | |
| | | | 1170 | | | | | | 1175 | | | | | 1180 | | | |
| ctc | tgg | gat | gtg | atc | att | gcc | gag | ctg | acc | aac | agg | aca | cac | aga | ttc | 3717 | |
| Leu | Trp | Asp | Val | Ile | Ile | Ala | Glu | Leu | Thr | Asn | Arg | Thr | His | Arg | Phe | | |
| 1185 | | | | | 1190 | | | | | | | 1195 | | | 1200 | | |
| ctg | gag | aaa | gcc | aag | gcc | ttg | aag | atc | agt | ggt | gtg | atc | ggg | cct | tac | 3765 | |
| Leu | Glu | Lys | Ala | Lys | Ala | Leu | Lys | Ile | Ser | Gly | Val | Ile | Gly | Pro | Tyr | | |
| | | | 1205 | | | | | | | | | 1210 | | | 1215 | | |
| cgt | gag | act | gtg | gac | tcg | gtg | gag | agg | aaa | gtc | agc | gag | ata | aaa | gac | 3813 | |

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Arg Glu Thr Val Asp Ser Val Glu Arg Lys Val Ser Glu Ile Lys Asp

1220

1225

1230

atc ctg gcg cag agc ccc gca gca gag cca ctg aaa aac att ggg aat 3861

Ile Leu Ala Gln Ser Pro Ala Ala Glu Pro Leu Lys Asn Ile Gly Asn

1235

1240

1245

ctc ttt gag gaa gca gag aaa ctg att aaa gat gtt aca gaa atg atg 3909

Leu Phe Glu Glu Ala Glu Lys Leu Ile Lys Asp Val Thr Glu Met Met

1250

1255

1260

gct caa gta gaa gtg aaa tta tct gac aca act tcc caa agc aac agc 3957

Ala Gln Val Glu Val Lys Leu Ser Asp Thr Thr Ser Gln Ser Asn Ser

1265

1270

1275

1280

aca gcc aaa gaa ctg gat tct cta cag aca gaa gcc gaa agc cta gac 4005

Thr Ala Lys Glu Leu Asp Ser Leu Gln Thr Glu Ala Glu Ser Leu Asp

1285

1290

1295

aac act gtg aaa gaa ctt gct gaa caa ctg gaa ttt atc aaa aac tca 4053

Asn Thr Val Lys Glu Leu Ala Glu Gln Leu Glu Phe Ile Lys Asn Ser

1300

1305

1310

gat att cgg ggt gcc ttg gat agc att acc aag tat ttc cag atg tct 4101

Asp Ile Arg Gly Ala Leu Asp Ser Ile Thr Lys Tyr Phe Gln Met Ser

1315

1320

1325

ctt gag gca gag gag agg gtg aat gcc tcc acc aca gaa ccc aac agc 4149

Leu Glu Ala Glu Glu Arg Val Asn Ala Ser Thr Thr Glu Pro Asn Ser

1330

1335

1340

act gtg gag cag tca gcc ctc atg aga gac aga gta gaa gac gtg atg 4197

| | | | | | | | | | | | | | | | | |
|------|------|-----|-----|------|------|------|-----|------|------|-----|------|-----|-----|------|-----|------|
| Thr | Val | Glu | Gln | Ser | Ala | Leu | Met | Arg | Asp | Arg | Val | Glu | Asp | Val | Met | |
| 1345 | | | | | 1350 | | | | 1355 | | | | | 1360 | | |
| atg | gag | cga | gaa | tcc | cag | ttc | aag | gaa | aaa | caa | gag | gag | cag | gct | cgc | 4245 |
| Met | Glu | Arg | Glu | Ser | Gln | Phe | Lys | Glu | Lys | Gln | Glu | Glu | Gln | Ala | Arg | |
| | | | | 1365 | | | | 1370 | | | | | | 1375 | | |
| ctc | ctt | gat | gaa | ctg | gca | ggc | aag | cta | caa | agc | cta | gac | ctt | tca | gcc | 4293 |
| Leu | Leu | Asp | Glu | Leu | Ala | Gly | Lys | Leu | Gln | Ser | Leu | Asp | Leu | Ser | Ala | |
| | | | | 1380 | | | | 1385 | | | | | | 1390 | | |
| gct | gcc | gaa | atg | acc | tgt | gga | aca | ccc | cca | ggg | gcc | tcc | tgt | tcc | gag | 4341 |
| Ala | Ala | Glu | Met | Thr | Cys | Gly | Thr | Pro | Pro | Gly | Ala | Ser | Cys | Ser | Glu | |
| | | | | 1395 | | | | 1400 | | | | | | 1405 | | |
| act | gaa | tgt | ggc | ggg | cca | aac | tgc | aga | act | gac | gaa | gga | gag | agg | aag | 4389 |
| Thr | Glu | Cys | Gly | Gly | Pro | Asn | Cys | Arg | Thr | Asp | Glu | Gly | Glu | Arg | Lys | |
| | 1410 | | | | | 1415 | | | | | 1420 | | | | | |
| tgt | ggg | ggg | cct | ggc | tgt | ggg | ggg | ctg | gtt | act | gtt | gca | cac | aac | gcc | 4437 |
| Cys | Gly | Gly | Pro | Gly | Cys | Gly | Gly | Leu | Val | Thr | Val | Ala | His | Asn | Ala | |
| 1425 | | | | | 1430 | | | | 1435 | | | | | 1440 | | |
| tgg | cag | aaa | gcc | atg | gac | ttg | gac | caa | gat | gtc | ctg | agt | gcc | ctg | gct | 4485 |
| Trp | Gln | Lys | Ala | Met | Asp | Leu | Asp | Gln | Asp | Val | Leu | Ser | Ala | Leu | Ala | |
| | | | | 1445 | | | | 1450 | | | | | | 1455 | | |
| gaa | gtg | gaa | cag | ctc | tcc | aag | atg | gtc | tct | gaa | gca | aaa | ctg | agg | gca | 4533 |
| Glu | Val | Glu | Gln | Leu | Ser | Lys | Met | Val | Ser | Glu | Ala | Lys | Leu | Arg | Ala | |
| | | | | 1460 | | | | 1465 | | | | | | 1470 | | |
| gat | gag | gca | aaa | caa | agt | gct | gaa | gac | att | ctg | ttg | aag | aca | aat | gct | 4581 |

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Asp Glu Ala Lys Gln Ser Ala Glu Asp Ile Leu Leu Lys Thr Asn Ala
 1475 1480 1485
 acc aaa gaa aaa atg gac aag agc aat gag gag ctg aga aat cta atc 4629
 Thr Lys Glu Lys Met Asp Lys Ser Asn Glu Glu Leu Arg Asn Leu Ile
 1490 1495 1500
 aag caa atc aga aac ttt ttg acc cag gat agt gct gat ttg gac agc 4677
 Lys Gln Ile Arg Asn Phe Leu Thr Gln Asp Ser Ala Asp Leu Asp Ser
 1505 1510 1515 1520
 att gaa gca gtt gct aat gaa gta ttg aaa atg gag atg cct agc acc 4725
 Ile Glu Ala Val Ala Asn Glu Val Leu Lys Met Glu Met Pro Ser Thr
 1525 1530 1535
 cca cag cag tta cag aac ttg aca gaa gat ata cgt gaa cga gtt gaa 4773
 Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu
 1540 1545 1550
 agc ctt tct caa gta gag gtt att ctt cag cat agt gct gct gac att 4821
 Ser Leu Ser Gln Val Glu Val Ile Leu Gln His Ser Ala Ala Asp Ile
 1555 1560 1565
 gcc aga gct gag atg ttg tta gaa gaa gct aaa aga gca agc aaa agt 4869
 Ala Arg Ala Glu Met Leu Leu Glu Glu Ala Lys Arg Ala Ser Lys Ser
 1570 1575 1580
 gca aca gat gtt aaa gtc act gca gat atg gta aag gaa gct ctg gaa 4917
 Ala Thr Asp Val Lys Val Thr Ala Asp Met Val Lys Glu Ala Leu Glu
 1585 1590 1595 1600
 gaa gca gaa aag gcc cag gtc gca gca gag aag gca att aaa caa gca 4965

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| | |
|---|------|
| Glu Ala Glu Lys Ala Gln Val Ala Ala Glu Lys Ala Ile Lys Gln Ala | |
| 1605 | 1610 |
| 1615 | |
| gat gaa gac att caa gga acc cag aac ctg tta act tcg att gag tct | 5013 |
| Asp Glu Asp Ile Gln Gly Thr Gln Asn Leu Leu Thr Ser Ile Glu Ser | |
| 1620 | 1625 |
| 1630 | |
| gaa aca gca gct tct gag gaa acc ttg ttc aac gcg tcc cag cgc atc | 5061 |
| Glu Thr Ala Ala Ser Glu Glu Thr Leu Phe Asn Ala Ser Gln Arg Ile | |
| 1635 | 1640 |
| 1645 | |
| agc gag tta gag agg aat gtg gaa gaa ctt aag cgg aaa gct gcc caa | 5109 |
| Ser Glu Leu Glu Arg Asn Val Glu Glu Leu Lys Arg Lys Ala Ala Gln | |
| 1650 | 1655 |
| 1660 | |
| aac tcc ggg gag gca gaa tat att gaa aaa gta gta tat act gtg aag | 5157 |
| Asn Ser Gly Glu Ala Glu Tyr Ile Glu Lys Val Val Tyr Thr Val Lys | |
| 1665 | 1670 |
| 1675 | 1680 |
| caa agt gca gaa gat gtt aag aag act tta gat ggt gaa ctt gat gaa | 5205 |
| Gln Ser Ala Glu Asp Val Lys Lys Thr Leu Asp Gly Glu Leu Asp Glu | |
| 1685 | 1690 |
| 1695 | |
| aag tat aaa aaa gta gaa aat tta att gcc aaa aaa act gaa gag tca | 5253 |
| Lys Tyr Lys Lys Val Glu Asn Leu Ile Ala Lys Lys Thr Glu Glu Ser | |
| 1700 | 1705 |
| 1710 | |
| gct gat gcc aga agg aaa gcc gaa atg cta caa aat gaa gca aaa act | 5301 |
| Ala Asp Ala Arg Arg Lys Ala Glu Met Leu Gln Asn Glu Ala Lys Thr | |
| 1715 | 1720 |
| 1725 | |
| ctt tta gct caa gca aat agc aag ctg caa ctg ctc aaa gat tta gaa | 5349 |

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Leu Leu Ala Gln Ala Asn Ser Lys Leu Gln Leu Leu Lys Asp Leu Glu
1730 1735 1740
aga aaa tat gaa gac aat caa aga tac tta gaa gat aaa gct caa gaa 5397
Arg Lys Tyr Glu Asp Asn Gln Arg Tyr Leu Glu Asp Lys Ala Gln Glu
1745 1750 1755 1760
tta gca aga ctg gaa gga gaa gtc cgt tca ctc cta aag gat ata agc 5445
Leu Ala Arg Leu Glu Gly Glu Val Arg Ser Leu Leu Lys Asp Ile Ser
1765 1770 1775
cag aaa gtt gct gtg tat agc aca tgc ttg taacagagga gaataaaaaa 5495
Gln Lys Val Ala Val Tyr Ser Thr Cys Leu
1780 1785
tggctgaggt gaacaaggta aaacaactac attttaaaaa ctgacttaat gctcttcaaa 5555
ataaaacatc acctatttaa tgtttttaat cacattttgt atgagttaaa taaagccc 5613

<210> 76

<211> 1786

<212> PRT

<213> Homo sapiens

<400> 76

Met Gly Leu Leu Gln Leu Leu Ala Phe Ser Phe Leu Ala Leu Cys Arg
1 5 10 15
Ala Arg Val Arg Ala Gln Glu Pro Glu Phe Ser Tyr Gly Cys Ala Glu
20 25 30
Gly Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Ile Gly Arg Ala Gln
35 40 45

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Leu | Ser | Val | Thr | Ser | Thr | Cys | Gly | Leu | His | Lys | Pro | Glu | Pro | Tyr |
| 50 | | | | | | 55 | | | | | | 60 | | | |
| Cys | Ile | Val | Ser | His | Leu | Gln | Glu | Asp | Lys | Lys | Cys | Phe | Ile | Cys | Asn |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ser | Gln | Asp | Pro | Tyr | His | Glu | Thr | Leu | Asn | Pro | Asp | Ser | His | Leu | Ile |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Glu | Asn | Val | Val | Thr | Thr | Phe | Ala | Pro | Asn | Arg | Leu | Lys | Ile | Trp | Trp |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Gln | Ser | Glu | Asn | Gly | Val | Glu | Asn | Val | Thr | Ile | Gln | Leu | Asp | Leu | Glu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ala | Glu | Phe | His | Phe | Thr | His | Leu | Ile | Met | Thr | Phe | Lys | Thr | Phe | Arg |
| | 130 | | | | | | 135 | | | | | 140 | | | |
| Pro | Ala | Ala | Met | Leu | Ile | Glu | Arg | Ser | Ser | Asp | Phe | Gly | Lys | Thr | Trp |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Gly | Val | Tyr | Arg | Tyr | Phe | Ala | Tyr | Asp | Cys | Glu | Ala | Ser | Phe | Pro | Gly |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Ile | Ser | Thr | Gly | Pro | Met | Lys | Lys | Val | Asp | Asp | Ile | Ile | Cys | Asp | Ser |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Arg | Tyr | Ser | Asp | Ile | Glu | Pro | Ser | Thr | Glu | Gly | Glu | Val | Ile | Phe | Arg |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Ala | Leu | Asp | Pro | Ala | Phe | Lys | Ile | Glu | Asp | Pro | Tyr | Ser | Pro | Arg | Ile |
| | 210 | | | | | | 215 | | | | | | 220 | | |
| Gln | Asn | Leu | Leu | Lys | Ile | Thr | Asn | Leu | Arg | Ile | Lys | Phe | Val | Lys | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | 240 | |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Thr | Leu | Gly | Asp | Asn | Leu | Leu | Asp | Ser | Arg | Met | Glu | Ile | Arg | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Lys | Tyr | Tyr | Tyr | Ala | Val | Tyr | Asp | Met | Val | Val | Arg | Gly | Asn | Cys | Phe |
| | | | | 260 | | | | 265 | | | | | 270 | | |
| Cys | Tyr | Gly | His | Ala | Ser | Glu | Cys | Ala | Pro | Val | Asp | Gly | Phe | Asn | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Glu | Val | Glu | Gly | Met | Val | His | Gly | His | Cys | Met | Cys | Arg | His | Asn | Thr |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Lys | Gly | Leu | Asn | Cys | Glu | Leu | Cys | Met | Asp | Phe | Tyr | His | Asp | Leu | Pro |
| 305 | | | | 310 | | | | | 315 | | | | | 320 | |
| Trp | Arg | Pro | Ala | Glu | Gly | Arg | Asn | Ser | Asn | Ala | Cys | Lys | Lys | Cys | Asn |
| | | | 325 | | | | | 330 | | | | | 335 | | |
| Cys | Asn | Glu | His | Ser | Ile | Ser | Cys | His | Phe | Asp | Met | Ala | Val | Tyr | Leu |
| | | 340 | | | | | 345 | | | | | | 350 | | |
| Ala | Thr | Gly | Asn | Val | Ser | Gly | Gly | Val | Cys | Asp | Asp | Cys | Gln | His | Asn |
| | 355 | | | | | 360 | | | | | | 365 | | | |
| Thr | Met | Gly | Arg | Asn | Cys | Glu | Gln | Cys | Lys | Pro | Phe | Tyr | Tyr | Gln | His |
| | 370 | | | | 375 | | | | | | 380 | | | | |
| Pro | Glu | Arg | Asp | Ile | Arg | Asp | Pro | Asn | Phe | Cys | Glu | Arg | Cys | Thr | Cys |
| 385 | | | | 390 | | | | | 395 | | | | | 400 | |
| Asp | Pro | Ala | Gly | Ser | Gln | Asn | Glu | Gly | Ile | Cys | Asp | Ser | Tyr | Thr | Asp |
| | | | 405 | | | | | 410 | | | | | 415 | | |
| Phe | Ser | Thr | Gly | Leu | Ile | Ala | Gly | Gln | Cys | Arg | Cys | Lys | Leu | Asn | Val |
| | | 420 | | | | | 425 | | | | | | 430 | | |

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Glu Gly Glu His Cys Asp Val Cys Lys Glu Gly Phe Tyr Asp Leu Ser
435 440 445

Ser Glu Asp Pro Phe Gly Cys Lys Ser Cys Ala Cys Asn Pro Leu Gly
450 455 460

Thr Ile Pro Gly Gly Asn Pro Cys Asp Ser Glu Thr Gly His Cys Tyr
465 470 475 480

Cys Lys Arg Leu Val Thr Gly Gln His Cys Asp Gln Cys Leu Pro Glu
485 490 495

His Trp Gly Leu Ser Asn Asp Leu Asp Gly Cys Arg Pro Cys Asp Cys
500 505 510

Asp Leu Gly Gly Ala Leu Asn Asn Ser Cys Phe Ala Glu Ser Gly Gln
515 520 525

Cys Ser Cys Arg Pro His Met Ile Gly Arg Gln Cys Asn Glu Val Glu
530 535 540

Pro Gly Tyr Tyr Phe Ala Thr Leu Asp His Tyr Leu Tyr Glu Ala Glu
545 550 555 560

Glu Ala Asn Leu Gly Pro Gly Val Ser Ile Val Glu Arg Gln Tyr Ile
565 570 575

Gln Asp Arg Ile Pro Ser Trp Thr Gly Ala Gly Phe Val Arg Val Pro
580 585 590

Glu Gly Ala Tyr Leu Glu Phe Phe Ile Asp Asn Ile Pro Tyr Ser Met
595 600 605

Glu Tyr Asp Ile Leu Ile Arg Tyr Glu Pro Gln Leu Pro Asp His Trp
610 615 620

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Glu Lys Ala Val Ile Thr Val Gln Arg Pro Gly Arg Ile Pro Thr Ser
 625 630 635 640
 Ser Arg Cys Gly Asn Thr Ile Pro Asp Asp Asp Asn Gln Val Val Ser
 645 650 655
 Leu Ser Pro Gly Ser Arg Tyr Val Val Leu Pro Arg Pro Val Cys Phe
 660 665 670
 Glu Lys Gly Thr Asn Tyr Thr Val Arg Leu Glu Leu Pro Gln Tyr Thr
 675 680 685
 Ser Ser Asp Ser Asp Val Glu Ser Pro Tyr Thr Leu Ile Asp Ser Leu
 690 695 700
 Val Leu Met Pro Tyr Cys Lys Ser Leu Asp Ile Phe Thr Val Gly Gly
 705 710 715 720
 Ser Gly Asp Gly Val Val Thr Asn Ser Ala Trp Glu Thr Phe Gln Arg
 725 730 735
 Tyr Arg Cys Leu Glu Asn Ser Arg Ser Val Val Lys Thr Pro Met Thr
 740 745 750
 Asp Val Cys Arg Asn Ile Ile Phe Ser Ile Ser Ala Leu Leu His Gln
 755 760 765
 Thr Gly Leu Ala Cys Glu Cys Asp Pro Gln Gly Ser Leu Ser Ser Val
 770 775 780
 Cys Asp Pro Asn Gly Gly Gln Cys Gln Cys Arg Pro Asn Val Val Gly
 785 790 795 800
 Arg Thr Cys Asn Arg Cys Ala Pro Gly Thr Phe Gly Phe Gly Pro Ser
 805 810 815

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|------|-----|-----|-----|--|
| Gly | Cys | Lys | Pro | Cys | Glu | Cys | His | Leu | Gln | Gly | Ser | Val | Asn | Ala | Phe | |
| | | | 820 | | | | | | 825 | | | | | | 830 | |
| Cys | Asn | Pro | Val | Thr | Gly | Gln | Cys | His | Cys | Phe | Gln | Gly | Val | Tyr | Ala | |
| | | | 835 | | | | | | 840 | | | | | | 845 | |
| Arg | Gln | Cys | Asp | Arg | Cys | Leu | Pro | Gly | His | Trp | Gly | Phe | Pro | Ser | Cys | |
| | | | 850 | | | | | | 855 | | | | | | 860 | |
| Gln | Pro | Cys | Gln | Cys | Asn | Gly | His | Ala | Asp | Asp | Cys | Asp | Pro | Val | Thr | |
| 865 | | | | | | 870 | | | | | | 875 | | | 880 | |
| Gly | Glu | Cys | Leu | Asn | Cys | Gln | Asp | Tyr | Thr | Met | Gly | His | Asn | Cys | Glu | |
| | | | 885 | | | | | | 890 | | | | | | 895 | |
| Arg | Cys | Leu | Ala | Gly | Tyr | Tyr | Gly | Asp | Pro | Ile | Ile | Gly | Ser | Gly | Asp | |
| | | | 900 | | | | | | 905 | | | | | | 910 | |
| His | Cys | Arg | Pro | Cys | Pro | Cys | Pro | Asp | Gly | Pro | Asp | Ser | Gly | Arg | Gln | |
| | | | 915 | | | | | | 920 | | | | | | 925 | |
| Phe | Ala | Arg | Ser | Cys | Tyr | Gln | Asp | Pro | Val | Thr | Leu | Gln | Leu | Ala | Cys | |
| 930 | | | | | | 935 | | | | | | 940 | | | | |
| Val | Cys | Asp | Pro | Gly | Tyr | Ile | Gly | Ser | Arg | Cys | Asp | Asp | Cys | Ala | Ser | |
| 945 | | | | | | 950 | | | | | | 955 | | | 960 | |
| Gly | Tyr | Phe | Gly | Asn | Pro | Ser | Glu | Val | Gly | Gly | Ser | Cys | Gln | Pro | Cys | |
| | | | 965 | | | | | | 970 | | | | | | 975 | |
| Gln | Cys | His | Asn | Asn | Ile | Asp | Thr | Thr | Asp | Pro | Glu | Ala | Cys | Asp | Lys | |
| | | | 980 | | | | | | 985 | | | | | | 990 | |
| Glu | Thr | Gly | Arg | Cys | Leu | Lys | Cys | Leu | Tyr | His | Thr | Glu | Gly | Glu | His | |
| 995 | | | | | | 1000 | | | | | | 1005 | | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Cys Gln Phe Cys Arg Phe Gly Tyr Tyr Gly Asp Ala Leu Arg Gln Asp | | | |
| 1010 | 1015 | 1020 | |
| Cys Arg Lys Cys Val Cys Asn Tyr Leu Gly Thr Val Gln Glu His Cys | | | |
| 1025 | 1030 | 1035 | 1040 |
| Asn Gly Ser Asp Cys Gln Cys Asp Lys Ala Thr Gly Gln Cys Leu Cys | | | |
| 1045 | 1050 | 1055 | |
| Leu Pro Asn Val Ile Gly Gln Asn Cys Asp Arg Cys Ala Pro Asn Thr | | | |
| 1060 | 1065 | 1070 | |
| Trp Gln Leu Ala Ser Gly Thr Gly Cys Asp Pro Cys Asn Cys Asn Ala | | | |
| 1075 | 1080 | 1085 | |
| Ala His Ser Phe Gly Pro Ser Cys Asn Glu Phe Thr Gly Gln Cys Gln | | | |
| 1090 | 1095 | 1100 | |
| Cys Met Pro Gly Phe Gly Gly Arg Thr Cys Ser Glu Cys Gln Glu Leu | | | |
| 1105 | 1110 | 1115 | 1120 |
| Phe Trp Gly Asp Pro Asp Val Glu Cys Arg Ala Cys Asp Cys Asp Pro | | | |
| 1125 | 1130 | 1135 | |
| Arg Gly Ile Glu Thr Pro Gln Cys Asp Gln Ser Thr Gly Gln Cys Val | | | |
| 1140 | 1145 | 1150 | |
| Cys Val Glu Gly Val Glu Gly Pro Arg Cys Asp Lys Cys Thr Arg Gly | | | |
| 1155 | 1160 | 1165 | |
| Tyr Ser Gly Val Phe Pro Asp Cys Thr Pro Cys His Gln Cys Phe Ala | | | |
| 1170 | 1175 | 1180 | |
| Leu Trp Asp Val Ile Ile Ala Glu Leu Thr Asn Arg Thr His Arg Phe | | | |
| 1185 | 1190 | 1195 | 1200 |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Leu Glu Lys Ala Lys Ala Leu Lys Ile Ser Gly Val Ile Gly Pro Tyr | | | |
| 1205 | 1210 | 1215 | |
| Arg Glu Thr Val Asp Ser Val Glu Arg Lys Val Ser Glu Ile Lys Asp | | | |
| 1220 | 1225 | 1230 | |
| Ile Leu Ala Gln Ser Pro Ala Ala Glu Pro Leu Lys Asn Ile Gly Asn | | | |
| 1235 | 1240 | 1245 | |
| Leu Phe Glu Glu Ala Glu Lys Leu Ile Lys Asp Val Thr Glu Met Met | | | |
| 1250 | 1255 | 1260 | |
| Ala Gln Val Glu Val Lys Leu Ser Asp Thr Thr Ser Gln Ser Asn Ser | | | |
| 1265 | 1270 | 1275 | 1280 |
| Thr Ala Lys Glu Leu Asp Ser Leu Gln Thr Glu Ala Glu Ser Leu Asp | | | |
| 1285 | 1290 | 1295 | |
| Asn Thr Val Lys Glu Leu Ala Glu Gln Leu Glu Phe Ile Lys Asn Ser | | | |
| 1300 | 1305 | 1310 | |
| Asp Ile Arg Gly Ala Leu Asp Ser Ile Thr Lys Tyr Phe Gln Met Ser | | | |
| 1315 | 1320 | 1325 | |
| Leu Glu Ala Glu Glu Arg Val Asn Ala Ser Thr Thr Glu Pro Asn Ser | | | |
| 1330 | 1335 | 1340 | |
| Thr Val Glu Gln Ser Ala Leu Met Arg Asp Arg Val Glu Asp Val Met | | | |
| 1345 | 1350 | 1355 | 1360 |
| Met Glu Arg Glu Ser Gln Phe Lys Glu Lys Gln Glu Glu Gln Ala Arg | | | |
| 1365 | 1370 | 1375 | |
| Leu Leu Asp Glu Leu Ala Gly Lys Leu Gln Ser Leu Asp Leu Ser Ala | | | |
| 1380 | 1385 | 1390 | |

PH-1064PCT-US seq.TXT

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|---|------|------|------|
| Ala Ala Glu Met Thr Cys Gly Thr Pro Pro Gly Ala Ser Cys Ser Glu | | | |
| 1395 | 1400 | 1405 | |
| Thr Glu Cys Gly Gly Pro Asn Cys Arg Thr Asp Glu Gly Glu Arg Lys | | | |
| 1410 | 1415 | 1420 | |
| Cys Gly Gly Pro Gly Cys Gly Gly Leu Val Thr Val Ala His Asn Ala | | | |
| 1425 | 1430 | 1435 | 1440 |
| Trp Gln Lys Ala Met Asp Leu Asp Gln Asp Val Leu Ser Ala Leu Ala | | | |
| | 1445 | 1450 | 1455 |
| Glu Val Glu Gln Leu Ser Lys Met Val Ser Glu Ala Lys Leu Arg Ala | | | |
| | 1460 | 1465 | 1470 |
| Asp Glu Ala Lys Gln Ser Ala Glu Asp Ile Leu Leu Lys Thr Asn Ala | | | |
| 1475 | 1480 | 1485 | |
| Thr Lys Glu Lys Met Asp Lys Ser Asn Glu Glu Leu Arg Asn Leu Ile | | | |
| 1490 | 1495 | 1500 | |
| Lys Gln Ile Arg Asn Phe Leu Thr Gln Asp Ser Ala Asp Leu Asp Ser | | | |
| 1505 | 1510 | 1515 | 1520 |
| Ile Glu Ala Val Ala Asn Glu Val Leu Lys Met Glu Met Pro Ser Thr | | | |
| | 1525 | 1530 | 1535 |
| Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu | | | |
| | 1540 | 1545 | 1550 |
| Ser Leu Ser Gln Val Glu Val Ile Leu Gln His Ser Ala Ala Asp Ile | | | |
| 1555 | 1560 | 1565 | |
| Ala Arg Ala Glu Met Leu Leu Glu Glu Ala Lys Arg Ala Ser Lys Ser | | | |
| 1570 | 1575 | 1580 | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|------|------|
| Ala Thr Asp Val Lys Val Thr Ala Asp Met Val Lys Glu Ala Leu Glu | | | |
| 1585 | 1590 | 1595 | 1600 |
| Glu Ala Glu Lys Ala Gln Val Ala Ala Glu Lys Ala Ile Lys Gln Ala | | | |
| 1605 | 1610 | 1615 | |
| Asp Glu Asp Ile Gln Gly Thr Gln Asn Leu Leu Thr Ser Ile Glu Ser | | | |
| 1620 | 1625 | 1630 | |
| Glu Thr Ala Ala Ser Glu Glu Thr Leu Phe Asn Ala Ser Gln Arg Ile | | | |
| 1635 | 1640 | 1645 | |
| Ser Glu Leu Glu Arg Asn Val Glu Glu Leu Lys Arg Lys Ala Ala Gln | | | |
| 1650 | 1655 | 1660 | |
| Asn Ser Gly Glu Ala Glu Tyr Ile Glu Lys Val Val Tyr Thr Val Lys | | | |
| 1665 | 1670 | 1675 | 1680 |
| Gln Ser Ala Glu Asp Val Lys Lys Thr Leu Asp Gly Glu Leu Asp Glu | | | |
| 1685 | 1690 | 1695 | |
| Lys Tyr Lys Lys Val Glu Asn Leu Ile Ala Lys Lys Thr Glu Glu Ser | | | |
| 1700 | 1705 | 1710 | |
| Ala Asp Ala Arg Arg Lys Ala Glu Met Leu Gln Asn Glu Ala Lys Thr | | | |
| 1715 | 1720 | 1725 | |
| Leu Leu Ala Gln Ala Asn Ser Lys Leu Gln Leu Leu Lys Asp Leu Glu | | | |
| 1730 | 1735 | 1740 | |
| Arg Lys Tyr Glu Asp Asn Gln Arg Tyr Leu Glu Asp Lys Ala Gln Glu | | | |
| 1745 | 1750 | 1755 | 1760 |
| Leu Ala Arg Leu Glu Gly Glu Val Arg Ser Leu Leu Lys Asp Ile Ser | | | |
| 1765 | 1770 | 1775 | |

PH-1064PCT-US seq.TXT

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1785

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Met Lys Ser Leu Ile Leu Leu Ala Ile

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Leu Ala Ala Leu Ala Val Val Thr Leu Cys Tyr Glu Ser His Glu Ser

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15

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atg gaa tct tat gaa ctt aat ccc ttc att aac agg aga aat gca aat 149

Met Glu Ser Tyr Glu Leu Asn Pro Phe Ile Asn Arg Arg Asn Ala Asn

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35

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acc ttc ata tcc cct cag cag aga tgg aga gct aaa gtc caa gag agg 197

Thr Phe Ile Ser Pro Gln Gln Arg Trp Arg Ala Lys Val Gln Glu Arg

45

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Asp Asp Tyr Arg Leu Cys Glu Arg Tyr Ala Met Val Tyr Gly Tyr Asn

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gct gcc tat aat cgc tac ttc agg aag cgc cga ggg acc aaa 335

Ala Ala Tyr Asn Arg Tyr Phe Arg Lys Arg Arg Gly Thr Lys

90

95

100

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ccccctgtag cagcattact gaaatacata ggcttatata caatgcttct ttcctgtata 455

ttctcttgtc tggctgcacc cctttttccc gccccagat tgataagtaa tgaaagtgca 515

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tgataactttc 585

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<211> 103

<212> PRT

<213> Homo sapiens

<400> 78

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25

30

Pro Phe Ile Asn Arg Arg Asn Ala Asn Thr Phe Ile Ser Pro Gln Gln

35

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45

PH-1064PCT-US seq.TXT

Arg Trp Arg Ala Lys Val Gln Glu Arg Ile Arg Glu Arg Ser Lys Pro

50

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Val His Glu Leu Asn Arg Glu Ala Cys Asp Asp Tyr Arg Leu Cys Glu

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Arg Tyr Ala Met Val Tyr Gly Tyr Asn Ala Ala Tyr Asn Arg Tyr Phe

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95

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<222> (6)..(1148)

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ttg gcc gag aac tcg gat gat tat gat ctc atg tat gtg aat ttg gac 98

Leu Ala Glu Asn Ser Asp Asp Tyr Asp Leu Met Tyr Val Asn Leu Asp

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aac gaa ata gac aat gga ctc cat ccc act gag gac ccc acg ccg tgc 146

PH-1064PCT-US seq.TXT

Asn Glu Ile Asp Asn Gly Leu His Pro Thr Glu Asp Pro Thr Pro Cys

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gcc tgc ggt cag gag cac tcg gaa tgg gac aag ctc ttc atc atg ctg 194

Ala Cys Gly Gln Glu His Ser Glu Trp Asp Lys Leu Phe Ile Met Leu

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gag aac tcg cag atg aga gag cgc atg ctg ctg caa gcc acg gac gac 242

Glu Asn Ser Gln Met Arg Glu Arg Met Leu Leu Gln Ala Thr Asp Asp

65

70

75

gtc ctg cgg ggc gag ctg cag agg ctg cgg gag gag ctg ggc cgg ctc 290

Val Leu Arg Gly Glu Leu Gln Arg Leu Arg Glu Glu Leu Gly Arg Leu

80

85

90

95

gcg gaa agc ctg gcg agg ccg tgc gcg ccg ggg gct ccc gca gag gcc 338

Ala Glu Ser Leu Ala Arg Pro Cys Ala Pro Gly Ala Pro Ala Glu Ala

100

105

110

agg ctg acc agt gct ctg gac gag ctg ctg cag gcg acc cgc gac gcg 386

Arg Leu Thr Ser Ala Leu Asp Glu Leu Leu Gln Ala Thr Arg Asp Ala

115

120

125

ggc cgc agg ctg gcg cgt atg gag ggc gcg gag gcg cag cgc cca gag 434

Gly Arg Arg Leu Ala Arg Met Glu Gly Ala Glu Ala Gln Arg Pro Glu

130

135

140

gag gcg ggg cgc gcc ctg gcc gcg gtg cta gag gag ctg cgg cag acg 482

Glu Ala Gly Arg Ala Leu Ala Ala Val Leu Glu Glu Leu Arg Gln Thr

145

150

155

cga gcc gac ctg cac gcg gtg cag ggc tgg gct gcc cgg agc tgg ctg 530

PH-1064PCT-US seq.TXT

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| Arg | Ala | Asp | Leu | His | Ala | Val | Gln | Gly | Trp | Ala | Ala | Arg | Ser | Trp | Leu | | |
| 160 | | | | | 165 | | | | | 170 | | | | | 175 | | |
| ccg | gca | ggt | tgt | gaa | aca | gct | att | tta | ttc | cca | atg | cgt | tcc | aag | aag | 578 | |
| Pro | Ala | Gly | Cys | Glu | Thr | Ala | Ile | Leu | Phe | Pro | Met | Arg | Ser | Lys | Lys | | |
| | | | | 180 | | | | | 185 | | | | | 190 | | | |
| att | ttt | gga | agc | gtg | cat | cca | gtg | aga | cca | atg | agg | ctt | gag | tct | ttt | 626 | |
| Ile | Phe | Gly | Ser | Val | His | Pro | Val | Arg | Pro | Met | Arg | Leu | Glu | Ser | Phe | | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| agt | gcc | tgc | att | tgg | gtc | aaa | gcc | aca | gat | gta | tta | aac | aaa | acc | atc | 674 | |
| Ser | Ala | Cys | Ile | Trp | Val | Lys | Ala | Thr | Asp | Val | Leu | Asn | Lys | Thr | Ile | | |
| | | | 210 | | | | | 215 | | | | | 220 | | | | |
| ctg | ttt | tcc | tat | ggc | aca | aag | agg | aat | cca | tat | gaa | atc | cag | ctg | tat | 722 | |
| Leu | Phe | Ser | Tyr | Gly | Thr | Lys | Arg | Asn | Pro | Tyr | Glu | Ile | Gln | Leu | Tyr | | |
| | | | 225 | | | | | 230 | | | | | 235 | | | | |
| ctc | agc | tac | caa | tcc | ata | gtg | ttt | gtg | gtg | ggt | gga | gag | gag | aac | aaa | 770 | |
| Leu | Ser | Tyr | Gln | Ser | Ile | Val | Phe | Val | Val | Gly | Gly | Glu | Glu | Asn | Lys | | |
| 240 | | | | | 245 | | | | | 250 | | | | 255 | | | |
| ctg | gtt | gct | gaa | gcc | atg | gtt | tcc | ctg | gga | agg | tgg | acc | cac | ctg | tgc | 818 | |
| Leu | Val | Ala | Glu | Ala | Met | Val | Ser | Leu | Gly | Arg | Trp | Thr | His | Leu | Cys | | |
| | | | | 260 | | | | | 265 | | | | | 270 | | | |
| ggc | acc | tgg | aat | tca | gag | gaa | ggg | ctc | aca | tcc | ttg | tgg | gta | aat | ggt | 866 | |
| Gly | Thr | Trp | Asn | Ser | Glu | Glu | Gly | Leu | Thr | Ser | Leu | Trp | Val | Asn | Gly | | |
| | | | 275 | | | | | 280 | | | | | 285 | | | | |
| gaa | ctg | gcg | gct | acc | act | gtt | gag | atg | gcc | aca | ggt | cac | att | gtt | cct | 914 | |

PH-1064PCT-US seq.TXT

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gag gga gga atc ctg cag att ggc caa gaa aag aat ggc tgc tgt gtg 962
Glu Gly Gly Ile Leu Gln Ile Gly Gln Glu Lys Asn Gly Cys Cys Val
305 310 315
ggt ggt ggc ttt gat gaa aca tta gcc ttc tct ggg aga ctc aca ggc 1010
Gly Gly Gly Phe Asp Glu Thr Leu Ala Phe Ser Gly Arg Leu Thr Gly
320 325 330 335
ttc aat atc tgg gat agt gtt ctt agc aat gaa gag ata aga gag acc 1058
Phe Asn Ile Trp Asp Ser Val Leu Ser Asn Glu Glu Ile Arg Glu Thr
340 345 350
gga gga gca gag tct tgt cac atc cgg ggg aat att gtt ggg tgg gga 1106
Gly Gly Ala Glu Ser Cys His Ile Arg Gly Asn Ile Val Gly Trp Gly
355 360 365
gtc aca gag atc cag cca cat gga gga gct cag tat gtt tca 1148
Val Thr Glu Ile Gln Pro His Gly Gly Ala Gln Tyr Val Ser
370 375 380
taaagtgtgt gaaactccac ttgaagccaa agaaagaaac tcacacttaa aacacatgcc 1208
agttgggaag gtctgaaaac tcagtgcata ataggaacac ttgagactaa tgaaagagag 1268
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<211> 381

<212> PRT

<213> Homo sapiens

<400> 80

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| Met | His | Leu | Leu | Ala | Ile | Leu | Phe | Cys | Ala | Leu | Trp | Ser | Ala | Val | Leu |
| 1 | | | | 5 | | | | | | 10 | | | | 15 | |
| Ala | Glu | Asn | Ser | Asp | Asp | Tyr | Asp | Leu | Met | Tyr | Val | Asn | Leu | Asp | Asn |
| | | | | 20 | | | | 25 | | | | | | 30 | |
| Glu | Ile | Asp | Asn | Gly | Leu | His | Pro | Thr | Glu | Asp | Pro | Thr | Pro | Cys | Ala |
| | | | 35 | | | | | 40 | | | | | | 45 | |
| Cys | Gly | Gln | Glu | His | Ser | Glu | Trp | Asp | Lys | Leu | Phe | Ile | Met | Leu | Glu |
| | | 50 | | | | 55 | | | | | 60 | | | | |
| Asn | Ser | Gln | Met | Arg | Glu | Arg | Met | Leu | Leu | Gln | Ala | Thr | Asp | Asp | Val |
| 65 | | | | 70 | | | | | | 75 | | | | 80 | |
| Leu | Arg | Gly | Glu | Leu | Gln | Arg | Leu | Arg | Glu | Glu | Leu | Gly | Arg | Leu | Ala |
| | | | | 85 | | | | | | 90 | | | | 95 | |
| Glu | Ser | Leu | Ala | Arg | Pro | Cys | Ala | Pro | Gly | Ala | Pro | Ala | Glu | Ala | Arg |
| | | | 100 | | | | | | | 105 | | | | 110 | |
| Leu | Thr | Ser | Ala | Leu | Asp | Glu | Leu | Leu | Gln | Ala | Thr | Arg | Asp | Ala | Gly |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
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| Ala Gly Arg Ala Leu Ala Ala Val Leu Glu Glu Leu Arg Gln Thr Arg | | |
| 145 | 150 | 155 |
| Ala Asp Leu His Ala Val Gln Gly Trp Ala Ala Arg Ser Trp Leu Pro | | |
| 165 | 170 | 175 |
| Ala Gly Cys Glu Thr Ala Ile Leu Phe Pro Met Arg Ser Lys Lys Ile | | |
| 180 | 185 | 190 |
| Phe Gly Ser Val His Pro Val Arg Pro Met Arg Leu Glu Ser Phe Ser | | |
| 195 | 200 | 205 |
| Ala Cys Ile Trp Val Lys Ala Thr Asp Val Leu Asn Lys Thr Ile Leu | | |
| 210 | 215 | 220 |
| Phe Ser Tyr Gly Thr Lys Arg Asn Pro Tyr Glu Ile Gln Leu Tyr Leu | | |
| 225 | 230 | 235 |
| Ser Tyr Gln Ser Ile Val Phe Val Val Gly Gly Glu Glu Asn Lys Leu | | |
| 245 | 250 | 255 |
| Val Ala Glu Ala Met Val Ser Leu Gly Arg Trp Thr His Leu Cys Gly | | |
| 260 | 265 | 270 |
| Thr Trp Asn Ser Glu Glu Gly Leu Thr Ser Leu Trp Val Asn Gly Glu | | |
| 275 | 280 | 285 |
| Leu Ala Ala Thr Thr Val Glu Met Ala Thr Gly His Ile Val Pro Glu | | |
| 290 | 295 | 300 |
| Gly Gly Ile Leu Gln Ile Gly Gln Glu Lys Asn Gly Cys Cys Val Gly | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|-----|
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| Gly Gly Phe Asp Glu Thr Leu Ala Phe Ser Gly Arg Leu Thr Gly Phe | | | |
| | 325 | 330 | 335 |
| Asn Ile Trp Asp Ser Val Leu Ser Asn Glu Glu Ile Arg Glu Thr Gly | | | |
| | 340 | 345 | 350 |
| Gly Ala Glu Ser Cys His Ile Arg Gly Asn Ile Val Gly Trp Gly Val | | | |
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ctccgctccg cccgcagtgc caacc atg acc gcc gcc agt atg ggc ccc gtc 172

Met Thr Ala Ala Ser Met Gly Pro Val

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Val | Ala | Phe | Val | Val | Leu | Leu | Ala | Leu | Cys | Ser | Arg | Pro | Ala | Val | |
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| ggc | cag | aac | tgc | agc | ggg | ccg | tgc | cgg | tgc | ccg | gac | gag | ccg | gcg | ccg | 268 |
| Gly | Gln | Asn | Cys | Ser | Gly | Pro | Cys | Arg | Cys | Pro | Asp | Glu | Pro | Ala | Pro | |
| | | | | 30 | | | | | 35 | | | | | 40 | | |
| cgc | tgc | ccg | gcg | ggc | gtg | agc | ctc | gtg | ctg | gac | ggc | tgc | ggc | tgc | tgc | 316 |
| Arg | Cys | Pro | Ala | Gly | Val | Ser | Leu | Val | Leu | Asp | Gly | Cys | Gly | Cys | Cys | |
| | | | 45 | | | | | 50 | | | | | 55 | | | |
| cgc | gtc | tgc | gcc | aag | cag | ctg | ggc | gag | ctg | tgc | acc | gag | cgc | gac | ccc | 364 |
| Arg | Val | Cys | Ala | Lys | Gln | Leu | Gly | Glu | Leu | Cys | Thr | Glu | Arg | Asp | Pro | |
| | 60 | | | | | | 65 | | | | | 70 | | | | |
| tgc | gac | ccg | cac | aag | ggc | ctc | ttc | tgt | gac | ttc | ggc | tcc | ccg | gcc | aac | 412 |
| Cys | Asp | Pro | His | Lys | Gly | Leu | Phe | Cys | Asp | Phe | Gly | Ser | Pro | Ala | Asn | |
| | 75 | | | | | 80 | | | | | 85 | | | | | |
| cgc | aag | atc | ggc | gtg | tgc | acc | gcc | aaa | gat | ggt | gct | ccc | tgc | atc | ttc | 460 |
| Arg | Lys | Ile | Gly | Val | Cys | Thr | Ala | Lys | Asp | Gly | Ala | Pro | Cys | Ile | Phe | |
| | 90 | | | | 95 | | | | | 100 | | | | 105 | | |
| ggt | ggt | acg | gtg | tac | cgc | agc | gga | gag | tcc | ttc | cag | agc | agc | tgc | aag | 508 |
| Gly | Gly | Thr | Val | Tyr | Arg | Ser | Gly | Glu | Ser | Phe | Gln | Ser | Ser | Cys | Lys | |
| | | | 110 | | | | | | 115 | | | | | 120 | | |
| tac | cag | tgc | acg | tgc | ctg | gac | ggg | gcg | gtg | ggc | tgc | atg | ccc | ctg | tgc | 556 |
| Tyr | Gln | Cys | Thr | Cys | Leu | Asp | Gly | Ala | Val | Gly | Cys | Met | Pro | Leu | Cys | |
| | | 125 | | | | | | 130 | | | | 135 | | | | |
| agc | atg | gac | gtt | cgt | ctg | ccc | agc | cct | gac | tgc | ccc | ttc | ccg | agg | agg | 604 |

PH-1064PCT-US seq.TXT

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Val Lys Leu Pro Gly Lys Cys Cys Glu Glu Trp Val Cys Asp Glu Pro
      155              160              165
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Lys Asp Gln Thr Val Val Gly Pro Ala Leu Ala Ala Tyr Arg Leu Glu
      170              175              180              185
gac acg ttt ggc cca gac cca act atg att aga gcc aac tgc ctg gtc 748
Asp Thr Phe Gly Pro Asp Pro Thr Met Ile Arg Ala Asn Cys Leu Val
      190              195              200
cag acc aca gag tgg agc gcc tgt tcc aag acc tgt ggg atg ggc atc 796
Gln Thr Thr Glu Trp Ser Ala Cys Ser Lys Thr Cys Gly Met Gly Ile
      205              210              215
tcc acc cgg gtt acc aat gac aac gcc tcc tgc agg cta gag aag cag 844
Ser Thr Arg Val Thr Asn Asp Asn Ala Ser Cys Arg Leu Glu Lys Gln
      220              225              230
agc cgc ctg tgc atg gtc agg cct tgc gaa gct gac ctg gaa gag aac 892
Ser Arg Leu Cys Met Val Arg Pro Cys Glu Ala Asp Leu Glu Glu Asn
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att aag aag ggc aaa aag tgc atc cgt act ccc aaa atc tcc aag cct 940
Ile Lys Lys Gly Lys Lys Cys Ile Arg Thr Pro Lys Ile Ser Lys Pro
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Lys Phe Cys Gly Val Cys Thr Asp Gly Arg Cys Cys Thr Pro His Arg

285

290

295

acc acc acc ctg ccg gtg gag ttc aag tgc cct gac ggc gag gtc atg 1084

Thr Thr Thr Leu Pro Val Glu Phe Lys Cys Pro Asp Gly Glu Val Met

300

305

310

aag aag aac atg atg ttc atc aag acc tgt gcc tgc cat tac aac tgt 1132

Lys Lys Asn Met Met Phe Ile Lys Thr Cys Ala Cys His Tyr Asn Cys

315

320

325

ccc gga gac aat gac atc ttt gaa tcg ctg tac tac agg aag atg tac 1180

Pro Gly Asp Asn Asp Ile Phe Glu Ser Leu Tyr Tyr Arg Lys Met Tyr

330

335

340

345

gga gac atg gca tgaagccaga gagttagaga cattaactca ttagactgga 1232

Gly Asp Met Ala

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aaatctgttt ttctaactgg gggaaaagat tcccacccaa ttcaaaacat tgtgccatgt 1352

caaacaaata gtctatcttc cccagacact gggttgaaga atgttaagac ttgacagtgg 1412

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gggtaccagc agaaagggtta gtatcatcag atagctctta tacgagtaat atgcctgcta 1532

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tgacagctag gatgtgcatt ctccagccat caagagactg agtcaagttg ttccttaagt 1652

cagaacagca gactcagctc tgacattctg attcgaatga cactgttcag gaatcggaat 1712

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 tcgttcaaag catgaaatgg atacttatat ggaaattctc tcagatagaa tgacagtccg 2012
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<211> 349

<212> PRT

<213> Homo sapiens

<400> 82

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Ala | Leu | Cys | Ser | Arg | Pro | Ala | Val | Gly | Gln | Asn | Cys | Ser | Gly | Pro |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Cys | Arg | Cys | Pro | Asp | Glu | Pro | Ala | Pro | Arg | Cys | Pro | Ala | Gly | Val | Ser |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Leu | Val | Leu | Asp | Gly | Cys | Gly | Cys | Cys | Arg | Val | Cys | Ala | Lys | Gln | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 | |
| Gly | Glu | Leu | Cys | Thr | Glu | Arg | Asp | Pro | Cys | Asp | Pro | His | Lys | Gly | Leu |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Phe | Cys | Asp | Phe | Gly | Ser | Pro | Ala | Asn | Arg | Lys | Ile | Gly | Val | Cys | Thr |
| | | 85 | | | | 90 | | | | | | 95 | | | |
| Ala | Lys | Asp | Gly | Ala | Pro | Cys | Ile | Phe | Gly | Gly | Thr | Val | Tyr | Arg | Ser |
| | | 100 | | | | | 105 | | | | | 110 | | | |
| Gly | Glu | Ser | Phe | Gln | Ser | Ser | Cys | Lys | Tyr | Gln | Cys | Thr | Cys | Leu | Asp |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Gly | Ala | Val | Gly | Cys | Met | Pro | Leu | Cys | Ser | Met | Asp | Val | Arg | Leu | Pro |
| | | 130 | | | | | 135 | | | | | 140 | | | |
| Ser | Pro | Asp | Cys | Pro | Phe | Pro | Arg | Arg | Val | Lys | Leu | Pro | Gly | Lys | Cys |
| 145 | | | | 150 | | | | | | 155 | | | | 160 | |
| Cys | Glu | Glu | Trp | Val | Cys | Asp | Glu | Pro | Lys | Asp | Gln | Thr | Val | Val | Gly |
| | | 165 | | | | | | | 170 | | | | 175 | | |
| Pro | Ala | Leu | Ala | Ala | Tyr | Arg | Leu | Glu | Asp | Thr | Phe | Gly | Pro | Asp | Pro |
| | | 180 | | | | | | 185 | | | | | 190 | | |
| Thr | Met | Ile | Arg | Ala | Asn | Cys | Leu | Val | Gln | Thr | Thr | Glu | Trp | Ser | Ala |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Cys | Ser | Lys | Thr | Cys | Gly | Met | Gly | Ile | Ser | Thr | Arg | Val | Thr | Asn | Asp |
| | | 210 | | | | 215 | | | | | | | 220 | | |
| Asn | Ala | Ser | Cys | Arg | Leu | Glu | Lys | Gln | Ser | Arg | Leu | Cys | Met | Val | Arg |
| 225 | | | | 230 | | | | | | 235 | | | | 240 | |
| Pro | Cys | Glu | Ala | Asp | Leu | Glu | Glu | Asn | Ile | Lys | Lys | Gly | Lys | Lys | Cys |
| | | 245 | | | | | | | 250 | | | | | 255 | |
| Ile | Arg | Thr | Pro | Lys | Ile | Ser | Lys | Pro | Ile | Lys | Phe | Glu | Leu | Ser | Gly |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 260 | 265 | 270 |
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| 275 | 280 | 285 |
| Asp Gly Arg Cys Cys Thr Pro His Arg Thr Thr Thr Leu Pro Val Glu | | |
| 290 | 295 | 300 |
| Phe Lys Cys Pro Asp Gly Glu Val Met Lys Lys Asn Met Met Phe Ile | | |
| 305 | 310 | 315 |
| Lys Thr Cys Ala Cys His Tyr Asn Cys Pro Gly Asp Asn Asp Ile Phe | | |
| 325 | 330 | 335 |
| Glu Ser Leu Tyr Tyr Arg Lys Met Tyr Gly Asp Met Ala | | |
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<212> DNA

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<222> (173)..(1525)

<400> 83

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Met Asp

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Gly Thr Ile Lys Glu Ala Leu Ser Val Val Ser Asp Asp Gln Ser Leu
5 10 15
ttt gac tca gcg tac gga gcg gca gcc cat ctc ccc aag gcc gac atg 274
Phe Asp Ser Ala Tyr Gly Ala Ala Ala His Leu Pro Lys Ala Asp Met
20 25 30
act gcc tcg ggg agt cct gac tac ggg cag ccc cac aag atc aac ccc 322
Thr Ala Ser Gly Ser Pro Asp Tyr Gly Gln Pro His Lys Ile Asn Pro
35 40 45 50
ctc cca cca cag cag gag tgg atc aat cag cca gtg agg gtc aac gtc 370
Leu Pro Pro Gln Gln Glu Trp Ile Asn Gln Pro Val Arg Val Asn Val
55 60 65
aag cgg gag tat gac cac atg aat gga tcc agg gag tct ccg gtg gac 418
Lys Arg Glu Tyr Asp His Met Asn Gly Ser Arg Glu Ser Pro Val Asp
70 75 80
tgc agc gtt agc aaa tgc agc aag ctg gtg ggc gga ggc gag tcc aac 466
Cys Ser Val Ser Lys Cys Ser Lys Leu Val Gly Gly Gly Glu Ser Asn
85 90 95
ccc atg aac tac aac agc tat atg gac gag aag aat ggc ccc cct cct 514
Pro Met Asn Tyr Asn Ser Tyr Met Asp Glu Lys Asn Gly Pro Pro Pro
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Pro Asn Met Thr Thr Asn Glu Arg Arg Val Ile Val Pro Ala Asp Pro

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          135          140          145
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Lys Glu Tyr Ser Leu Met Glu Ile Asp Thr Ser Phe Phe Gln Asn Met
          150          155          160
gat ggc aag gaa ctg tgt aaa atg aac aag gag gac ttc ctc cgc gcc 706
Asp Gly Lys Glu Leu Cys Lys Met Asn Lys Glu Asp Phe Leu Arg Ala
          165          170          175
acc acc ctc tac aac acg gaa gtg ctg ttg tca cac ctc agt tac ctc 754
Thr Thr Leu Tyr Asn Thr Glu Val Leu Leu Ser His Leu Ser Tyr Leu
          180          185          190
agg gaa agt tca ctg ctg gcc tat aat aca acc tcc cac acc gac caa 802
Arg Glu Ser Ser Leu Leu Ala Tyr Asn Thr Thr Ser His Thr Asp Gln
195          200          205          210
tcc tca cga ttg agt gtc aaa gaa gac cct tct tat gac tca gtc aga 850
Ser Ser Arg Leu Ser Val Lys Glu Asp Pro Ser Tyr Asp Ser Val Arg
          215          220          225
aga gga gct tgg ggc aat aac atg aat tct ggc ctc aac aaa agt cct 898
Arg Gly Ala Trp Gly Asn Asn Met Asn Ser Gly Leu Asn Lys Ser Pro
          230          235          240
ccc ctt gga ggg gca caa acg atc agt aag aat aca gag caa cgg ccc 946
Pro Leu Gly Gly Ala Gln Thr Ile Ser Lys Asn Thr Glu Gln Arg Pro

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|---|-----|-----|------|
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| Gln Pro Asp Pro Tyr Gln Ile Leu Gly Pro Thr Ser Ser Arg Leu Ala | | | |
| 260 | 265 | 270 | |
| aac cct gga agc ggg cag atc cag ctg tgg caa ttc ctc ctg gag ctg | | | 1042 |
| Asn Pro Gly Ser Gly Gln Ile Gln Leu Trp Gln Phe Leu Leu Glu Leu | | | |
| 275 | 280 | 285 | 290 |
| ctc tcc gac agc gcc aac gcc agc tgt atc acc tgg gag ggg acc aac | | | 1090 |
| Leu Ser Asp Ser Ala Asn Ala Ser Cys Ile Thr Trp Glu Gly Thr Asn | | | |
| | 295 | 300 | 305 |
| ggg gag ttc aaa atg acg gac ccc gat gag gtg gcc agg cgc tgg ggc | | | 1138 |
| Gly Glu Phe Lys Met Thr Asp Pro Asp Glu Val Ala Arg Arg Trp Gly | | | |
| | 310 | 315 | 320 |
| gag cgg aaa agc aag ccc aac atg aat tac gac aag ctg agc cgg gcc | | | 1186 |
| Glu Arg Lys Ser Lys Pro Asn Met Asn Tyr Asp Lys Leu Ser Arg Ala | | | |
| | 325 | 330 | 335 |
| ctc cgt tat tac tat gat aaa aac att atg acc aaa gtg cac ggc aaa | | | 1234 |
| Leu Arg Tyr Tyr Tyr Asp Lys Asn Ile Met Thr Lys Val His Gly Lys | | | |
| | 340 | 345 | 350 |
| aga tat gct tac aaa ttt gac ttc cac ggc att gcc cag gct ctg cag | | | 1282 |
| Arg Tyr Ala Tyr Lys Phe Asp Phe His Gly Ile Ala Gln Ala Leu Gln | | | |
| 355 | 360 | 365 | 370 |
| cca cat ccg acc gag tcg tcc atg tac aag tac cct tct gac atc tcc | | | 1330 |
| Pro His Pro Thr Glu Ser Ser Met Tyr Lys Tyr Pro Ser Asp Ile Ser | | | |

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tac atg cct tcc caa cat gcc cac cag cag aag gtg aac ttt gtc cct 1378
Tyr Met Pro Ser Gln His Ala His Gln Gln Lys Val Asn Phe Val Pro

390                               395                               400
ccc cat cca tcc tcc atg cct gtc act tcc tcc agc ttc ttt gga gcc 1426
Pro His Pro Ser Ser Met Pro Val Thr Ser Ser Ser Phe Phe Gly Ala

405                               410                               415
gca tca caa tac tgg acc tcc acg ggg gga atc tac ccc aac ccc aac 1474
Ala Ser Gln Tyr Trp Thr Ser Thr Gly Gly Ile Tyr Pro Asn Pro Asn

420                               425                               430
gtc ccc cgc cat cct aac acc cac gtg cct tca cac tta ggc agc tac 1522
Val Pro Arg His Pro Asn Thr His Val Pro Ser His Leu Gly Ser Tyr

435                               440                               445                               450
tac tagaagctta ctcatcagtg gccttctagc tgaagcccat cctgcacact 1575
Tyr

tactggatgc tttggactca acaggacata tgtggccttg aagggaagac aaaactggat 1635
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<213> Homo sapiens

<400> 84

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Ser Leu Phe Asp Ser Ala Tyr Gly Ala Ala Ala His Leu Pro Lys Ala

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30

Asp Met Thr Ala Ser Gly Ser Pro Asp Tyr Gly Gln Pro His Lys Ile

PH-1064PCT-US seq.TXT

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| Asn Val Lys Arg Glu Tyr Asp His Met Asn Gly Ser Arg Glu Ser Pro | | |
| 65 | 70 | 75 |
| Val Asp Cys Ser Val Ser Lys Cys Ser Lys Leu Val Gly Gly Gly Glu | | |
| 85 | 90 | 95 |
| Ser Asn Pro Met Asn Tyr Asn Ser Tyr Met Asp Glu Lys Asn Gly Pro | | |
| 100 | 105 | 110 |
| Pro Pro Pro Asn Met Thr Thr Asn Glu Arg Arg Val Ile Val Pro Ala | | |
| 115 | 120 | 125 |
| Asp Pro Thr Leu Trp Thr Gln Glu His Val Arg Gln Trp Leu Glu Trp | | |
| 130 | 135 | 140 |
| Ala Ile Lys Glu Tyr Ser Leu Met Glu Ile Asp Thr Ser Phe Phe Gln | | |
| 145 | 150 | 155 |
| Asn Met Asp Gly Lys Glu Leu Cys Lys Met Asn Lys Glu Asp Phe Leu | | |
| 165 | 170 | 175 |
| Arg Ala Thr Thr Leu Tyr Asn Thr Glu Val Leu Leu Ser His Leu Ser | | |
| 180 | 185 | 190 |
| Tyr Leu Arg Glu Ser Ser Leu Leu Ala Tyr Asn Thr Thr Ser His Thr | | |
| 195 | 200 | 205 |
| Asp Gln Ser Ser Arg Leu Ser Val Lys Glu Asp Pro Ser Tyr Asp Ser | | |
| 210 | 215 | 220 |
| Val Arg Arg Gly Ala Trp Gly Asn Asn Met Asn Ser Gly Leu Asn Lys | | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| Ser | Pro | Pro | Leu | Gly | Gly | Ala | Gln | Thr | Ile | Ser | Lys | Asn | Thr | Glu | Gln |
| | | 245 | | 250 | | 255 | | | | | | | | | |
| Arg | Pro | Gln | Pro | Asp | Pro | Tyr | Gln | Ile | Leu | Gly | Pro | Thr | Ser | Ser | Arg |
| | | 260 | | 265 | | 270 | | | | | | | | | |
| Leu | Ala | Asn | Pro | Gly | Ser | Gly | Gln | Ile | Gln | Leu | Trp | Gln | Phe | Leu | Leu |
| | | 275 | | 280 | | 285 | | | | | | | | | |
| Glu | Leu | Leu | Ser | Asp | Ser | Ala | Asn | Ala | Ser | Cys | Ile | Thr | Trp | Glu | Gly |
| | | 290 | | 295 | | 300 | | | | | | | | | |
| Thr | Asn | Gly | Glu | Phe | Lys | Met | Thr | Asp | Pro | Asp | Glu | Val | Ala | Arg | Arg |
| 305 | | 310 | | 315 | | 320 | | | | | | | | | |
| Trp | Gly | Glu | Arg | Lys | Ser | Lys | Pro | Asn | Met | Asn | Tyr | Asp | Lys | Leu | Ser |
| | | 325 | | 330 | | 335 | | | | | | | | | |
| Arg | Ala | Leu | Arg | Tyr | Tyr | Tyr | Asp | Lys | Asn | Ile | Met | Thr | Lys | Val | His |
| | | 340 | | 345 | | 350 | | | | | | | | | |
| Gly | Lys | Arg | Tyr | Ala | Tyr | Lys | Phe | Asp | Phe | His | Gly | Ile | Ala | Gln | Ala |
| | | 355 | | 360 | | 365 | | | | | | | | | |
| Leu | Gln | Pro | His | Pro | Thr | Glu | Ser | Ser | Met | Tyr | Lys | Tyr | Pro | Ser | Asp |
| | | 370 | | 375 | | 380 | | | | | | | | | |
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| 385 | | 390 | | 395 | | 400 | | | | | | | | | |
| Val | Pro | Pro | His | Pro | Ser | Ser | Met | Pro | Val | Thr | Ser | Ser | Ser | Phe | Phe |
| | | 405 | | 410 | | 415 | | | | | | | | | |
| Gly | Ala | Ala | Ser | Gln | Tyr | Trp | Thr | Ser | Thr | Gly | Gly | Ile | Tyr | Pro | Asn |

PH-1064PCT-US seq.TXT

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425

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435

440

445

Ser Tyr Tyr

450

<210> 85

<211> 1817

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<213> Homo sapiens

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<222> (2)..(361)

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15

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25

30

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35

40

45

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65 70 75 80
gtc tct gga gct gtg gtt gct gct gtg ata tgg agg aag aag agc tca 289
Val Ser Gly Ala Val Val Ala Ala Val Ile Trp Arg Lys Lys Ser Ser
85 90 95
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Gln Gly Ser Glu Ser His Ser Leu
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gctgtgcctt cattcatggg ttaatggatt aatgggttat cacaggaatg ggactgggtg 1291
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cccatgacct tttaacagca tctgcttcat tcccctcacc ttcccagggt gatctgaggt 1771
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<210> 86

<211> 120

<212> PRT

<213> Homo sapiens

<400> 86

Gln Gln Asp Gly Glu Gly His Thr Gln Asp Thr Glu Leu Val Glu Thr

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Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ala Val Val Val

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30

Pro Ser Gly Glu Glu Gln Arg Tyr Thr Cys His Val Gln His Glu Gly

PH-1064PCT-US seq.TXT

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|---|---|-----|
| 35 | 40 | 45 |
| Leu Pro Glu Pro Val Thr | Leu Arg Trp Lys Pro Ala Ser Gln Pro Thr | |
| 50 | 55 | 60 |
| Ile Pro Ile Val Gly Ile Ile Ala Gly Leu Val Leu Leu Gly Ser Val | | |
| 65 | 70 | 75 |
| Val Ser Gly Ala Val Val Ala Ala Val Ile Trp Arg Lys Lys Ser Ser | | |
| 85 | 90 | 95 |
| Gly Gly Lys Gly Gly Ser Tyr Ser Lys Ala Glu Trp Ser Asp Ser Ala | | |
| 100 | 105 | 110 |
| Gln Gly Ser Glu Ser His Ser Leu | | |
| 115 | 120 | |

<210> 87

<211> 2876

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (76)..(1281)

<400> 87

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Met Gln Met Ser Pro Ala Leu Thr Cys Leu Val Leu

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PH-1064PCT-US seq.TXT

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| ggc ctg gcc ctt gtc ttt ggt gaa ggg tct gct gtg cac cat ccc cca | 159 |
| Gly Leu Ala Leu Val Phe Gly Glu Gly Ser Ala Val His His Pro Pro | |
| 15 20 25 | |
| tcc tac gtg gcc cac ctg gcc tca gac ttc ggg gtg agg gtg ttt cag | 207 |
| Ser Tyr Val Ala His Leu Ala Ser Asp Phe Gly Val Arg Val Phe Gln | |
| 30 35 40 | |
| cag gtg gcg cag gcc tcc aag gac cgc aac gtg gtt ttc tca ccc tat | 255 |
| Gln Val Ala Gln Ala Ser Lys Asp Arg Asn Val Val Phe Ser Pro Tyr | |
| 45 50 55 60 | |
| ggg gtg gcc tcg gtg ttg gcc atg ctc cag ctg aca aca gga gga gaa | 303 |
| Gly Val Ala Ser Val Leu Ala Met Leu Gln Leu Thr Thr Gly Gly Glu | |
| 65 70 75 | |
| acc cag cag cag att caa gca gct atg gga ttc aag att gat gac aag | 351 |
| Thr Gln Gln Gln Ile Gln Ala Ala Met Gly Phe Lys Ile Asp Asp Lys | |
| 80 85 90 | |
| ggc atg gcc ccc gcc ctc cgg cat ctg tac aag gag ctc atg ggg cca | 399 |
| Gly Met Ala Pro Ala Leu Arg His Leu Tyr Lys Glu Leu Met Gly Pro | |
| 95 100 105 | |
| tgg aac aag gat gag atc agc acc aca gac gcg atc ttc gtc cag cgg | 447 |
| Trp Asn Lys Asp Glu Ile Ser Thr Thr Asp Ala Ile Phe Val Gln Arg | |
| 110 115 120 | |
| gat ctg aag ctg gtc cag ggc ttc atg ccc cac ttc ttc agg ctg ttc | 495 |
| Asp Leu Lys Leu Val Gln Gly Phe Met Pro His Phe Phe Arg Leu Phe | |
| 125 130 135 140 | |

PH-1064PCT-US seq.TXT

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| cgg agc acg gtc aag caa gtg gac ttt tca gag gtg gag aga gcc aga | 543 |
| Arg Ser Thr Val Lys Gln Val Asp Phe Ser Glu Val Glu Arg Ala Arg | |
| 145 150 155 | |
| ttc atc atc aat gac tgg gtg aag aca cac aca aaa ggt atg atc agc | 591 |
| Phe Ile Ile Asn Asp Trp Val Lys Thr His Thr Lys Gly Met Ile Ser | |
| 160 165 170 | |
| aac ttg ctt ggg aaa gga gcc gtg gac cag ctg aca cgg ctg gtg ctg | 639 |
| Asn Leu Leu Gly Lys Gly Ala Val Asp Gln Leu Thr Arg Leu Val Leu | |
| 175 180 185 | |
| gtg aat gcc ctc tac ttc aac ggc cag tgg aag act ccc ttc ccc gac | 687 |
| Val Asn Ala Leu Tyr Phe Asn Gly Gln Trp Lys Thr Pro Phe Pro Asp | |
| 190 195 200 | |
| tcc agc acc cac cgc cgc ctc ttc cac aaa tca gac ggc agc act gtc | 735 |
| Ser Ser Thr His Arg Arg Leu Phe His Lys Ser Asp Gly Ser Thr Val | |
| 205 210 215 220 | |
| tct gtg ccc atg atg gct cag acc aac aag ttc aac tat act gag ttc | 783 |
| Ser Val Pro Met Met Ala Gln Thr Asn Lys Phe Asn Tyr Thr Glu Phe | |
| 225 230 235 | |
| acc acg ccc gat ggc cat tac tac gac atc ctg gaa ctg ccc tac cac | 831 |
| Thr Thr Pro Asp Gly His Tyr Tyr Asp Ile Leu Glu Leu Pro Tyr His | |
| 240 245 250 | |
| ggg gac acc ctc agc atg ttc att gct gcc cct tat gaa aaa gag gtg | 879 |
| Gly Asp Thr Leu Ser Met Phe Ile Ala Ala Pro Tyr Glu Lys Glu Val | |
| 255 260 265 | |

PH-1064PCT-US seq.TXT

| | |
|---|------|
| cct ctc tct gcc ctc acc aac att ctg agt gcc cag ctc atc agc cac | 927 |
| Pro Leu Ser Ala Leu Thr Asn Ile Leu Ser Ala Gln Leu Ile Ser His | |
| 270 275 280 | |
| tgg aaa ggc aac atg acc agg ctg ccc cgc ctc ctg gtt ctg ccc aag | 975 |
| Trp Lys Gly Asn Met Thr Arg Leu Pro Arg Leu Leu Val Leu Pro Lys | |
| 285 290 295 300 | |
| ttc tcc ctg gag act gaa gtc gac ctc agg aag ccc cta gag aac ctg | 1023 |
| Phe Ser Leu Glu Thr Glu Val Asp Leu Arg Lys Pro Leu Glu Asn Leu | |
| 305 310 315 | |
| gga atg acc gac atg ttc aga cag ttt cag gct gac ttc acg agt ctt | 1071 |
| Gly Met Thr Asp Met Phe Arg Gln Phe Gln Ala Asp Phe Thr Ser Leu | |
| 320 325 330 | |
| tca gac caa gag cct ctc cac gtc gcg cag gcg ctg cag aaa gtg aag | 1119 |
| Ser Asp Gln Glu Pro Leu His Val Ala Gln Ala Leu Gln Lys Val Lys | |
| 335 340 345 | |
| atc gag gtg aac gag agt ggc acg gtg gcc tcc tca tcc aca gct gtc | 1167 |
| Ile Glu Val Asn Glu Ser Gly Thr Val Ala Ser Ser Ser Thr Ala Val | |
| 350 355 360 | |
| ata gtc tca gcc cgc atg gcc ccc gag gag atc atc atg gac aga ccc | 1215 |
| Ile Val Ser Ala Arg Met Ala Pro Glu Glu Ile Ile Met Asp Arg Pro | |
| 365 370 375 380 | |
| ttc ctc ttt gtg gtc cgg cac aac ccc aca gga aca gtc ctt ttc atg | 1263 |
| Phe Leu Phe Val Val Arg His Asn Pro Thr Gly Thr Val Leu Phe Met | |
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PH-1064PCT-US seq.TXT

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Gly Gln Val Met Glu Pro

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acaaaactgg agatgcatcg ggaaagaaga aactccgaag aaaagaattt tagtggttaat 1371

gactctttct gaaggaagag aagacatttg ccttttggtta aaagatggta aaccagatct 1431

gtctccaaga ccttggcctc tccttgaggg acctttaggt caaactccct agtctccacc 1491

tgagaccctg ggagagaagt ttgaagcaca actcccttaa ggtctccaaa ccagacgggtg 1551

acgcctgcgg gaccatctgg ggcacctgct tccaccgctc tctctgcca ctcgggtctg 1611

cagacctggg tcccactgag gccctttgca ggatggaact acggggctta caggagcttt 1671

tgtgtgcctg gtagaaacta tttctgttcc agtcacattg ccatcactct tgtactgcct 1731

gccaccgagg aggaggctgg tgacaggcca aaggccagtg gaagaaacac cttttcatct 1791

cagagtccac tgtggcactg gccaccctc cccagtacag ggggtgctgca ggtggcagag 1851

tgaatgtccc ccatcatgtg gcccaactct cctggcctgg ccatctccct cccagaaac 1911

agtgtgcatg ggttattttg gagtgtaggt gacttggtta ctcatgaag cagatttctg 1971

cttcctttta tttttatagg aatagaggaa gaaatgtcag atgcgtgccc agctcttcac 2031

cccccaatct cttggtgggg aggggtgtac ctaaataatt atcatatcct tgcccttgag 2091

tgcttgtag agagaaagag aactactaag gaaaataata ttatttaaac tcgctcctag 2151

tgtttctttg tggctctgtg caccgtatct caggaagtcc agccacttga ctggcacaca 2211

cccctcggga catccagcgt gacggagccc aactgccac cttgtggcgg cctgagaccc 2271

tcgcgcccc cgcgcccccc gcgcccctct ttttcccctt gatggaaatt gaccatacaa 2331

tttcatcctc cttcagggga tcaaaaggac ggagtggggg gacagagact cagatgagga 2391

cagagtgggt tccaatgtgt tcaatagatt taggagcaga aatgcaaggg gctgcatgac 2451

ctaccaggac agaactttcc ccaattacag ggtgactcac agccgcattg gtgactcact 2511

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PH-1064PCT-US seq.TXT

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<210> 88

<211> 402

<212> PRT

<213> Homo sapiens

<400> 88

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His Leu Ala Ser Asp Phe Gly Val Arg Val Phe Gln Gln Val Ala Gln
35 40 45
Ala Ser Lys Asp Arg Asn Val Val Phe Ser Pro Tyr Gly Val Ala Ser
50 55 60
Val Leu Ala Met Leu Gln Leu Thr Thr Gly Gly Glu Thr Gln Gln Gln
65 70 75 80
Ile Gln Ala Ala Met Gly Phe Lys Ile Asp Asp Lys Gly Met Ala Pro
85 90 95
Ala Leu Arg His Leu Tyr Lys Glu Leu Met Gly Pro Trp Asn Lys Asp

PH-1064PCT-US seq.TXT

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| Glu Ile Ser Thr Thr Asp Ala Ile Phe Val Gln Arg Asp Leu Lys Leu | | | | |
| 115 | | 120 | | 125 |
| Val Gln Gly Phe Met Pro His Phe Phe Arg Leu Phe Arg Ser Thr Val | | | | |
| 130 | | 135 | | 140 |
| Lys Gln Val Asp Phe Ser Glu Val Glu Arg Ala Arg Phe Ile Ile Asn | | | | |
| 145 | | 150 | | 155 |
| Asp Trp Val Lys Thr His Thr Lys Gly Met Ile Ser Asn Leu Leu Gly | | | | |
| | 165 | | 170 | |
| Lys Gly Ala Val Asp Gln Leu Thr Arg Leu Val Leu Val Asn Ala Leu | | | | |
| | 180 | | 185 | |
| Tyr Phe Asn Gly Gln Trp Lys Thr Pro Phe Pro Asp Ser Ser Thr His | | | | |
| | 195 | | 200 | |
| Arg Arg Leu Phe His Lys Ser Asp Gly Ser Thr Val Ser Val Pro Met | | | | |
| | 210 | | 215 | |
| Met Ala Gln Thr Asn Lys Phe Asn Tyr Thr Glu Phe Thr Thr Pro Asp | | | | |
| 225 | | 230 | | 235 |
| Gly His Tyr Tyr Asp Ile Leu Glu Leu Pro Tyr His Gly Asp Thr Leu | | | | |
| | 245 | | 250 | |
| Ser Met Phe Ile Ala Ala Pro Tyr Glu Lys Glu Val Pro Leu Ser Ala | | | | |
| | 260 | | 265 | |
| Leu Thr Asn Ile Leu Ser Ala Gln Leu Ile Ser His Trp Lys Gly Asn | | | | |
| | 275 | | 280 | |
| Met Thr Arg Leu Pro Arg Leu Leu Val Leu Pro Lys Phe Ser Leu Glu | | | | |

PH-1064PCT-US seq.TXT
295 300

290 Thr Glu Val Asp Leu Arg Lys Pro Leu Glu Asn Leu Gly Met Thr Asp
305 310 315 320
Met Phe Arg Gln Phe Gln Ala Asp Phe Thr Ser Leu Ser Asp Gln Glu
325 330 335
Pro Leu His Val Ala Gln Ala Leu Gln Lys Val Lys Ile Glu Val Asn
340 345 350
Glu Ser Gly Thr Val Ala Ser Ser Ser Thr Ala Val Ile Val Ser Ala
355 360 365
Arg Met Ala Pro Glu Glu Ile Ile Met Asp Arg Pro Phe Leu Phe Val
370 375 380
Val Arg His Asn Pro Thr Gly Thr Val Leu Phe Met Gly Gln Val Met
385 390 395 400
Glu Pro

<210> 89

<211> 1412

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (52)..(1341)

<400> 89

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PH-1064PCT-US seq.TXT

Met Ser

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Phe Thr Thr Arg Ser Thr Phe Ser Thr Asn Tyr Arg Ser Leu Gly Ser

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10

15

gtc cag gcg ccc agc tac ggc gcc cgg ccg gtc agc agc gcg gcc agc 153

Val Gln Ala Pro Ser Tyr Gly Ala Arg Pro Val Ser Ser Ala Ala Ser

20

25

30

gtc tat gca ggc gct ggg ggc tct ggt tcc cgg atc tcc gtg tcc cgc 201

Val Tyr Ala Gly Ala Gly Gly Ser Gly Ser Arg Ile Ser Val Ser Arg

35

40

45

50

tcc acc agc ttc agg ggc ggc atg ggg tcc ggg ggc ctg gcc acc ggg 249

Ser Thr Ser Phe Arg Gly Gly Met Gly Ser Gly Gly Leu Ala Thr Gly

55

60

65

ata gcc ggg ggt ctg gca gga atg gga ggc atc cag aac gag aag gag 297

Ile Ala Gly Gly Leu Ala Gly Met Gly Gly Ile Gln Asn Glu Lys Glu

70

75

80

acc atg caa agc ctg aac gac cgc ctg gcc tct tac ctg gac aga gtg 345

Thr Met Gln Ser Leu Asn Asp Arg Leu Ala Ser Tyr Leu Asp Arg Val

85

90

95

agg agc ctg gag acc gag aac cgg agg ctg gag agc aaa atc cgg gag 393

Arg Ser Leu Glu Thr Glu Asn Arg Arg Leu Glu Ser Lys Ile Arg Glu

100

105

110

cac ttg gag aag aag gga ccc cag gtc aga gac tgg agc cat tac ttc 441

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Leu | Glu | Lys | Lys | Gly | Pro | Gln | Val | Arg | Asp | Trp | Ser | His | Tyr | Phe | |
| 115 | | | | | 120 | | | | | 125 | | | | | 130 | |
| aag | atc | atc | gag | gac | ctg | agg | gct | cag | atc | ttc | gca | aat | act | gtg | gac | 489 |
| Lys | Ile | Ile | Glu | Asp | Leu | Arg | Ala | Gln | Ile | Phe | Ala | Asn | Thr | Val | Asp | |
| | | | 135 | | | | | 140 | | | | | | 145 | | |
| aat | gcc | cgc | atc | gtt | ctg | cag | att | gac | aat | gcc | cgt | ctt | gct | gct | gat | 537 |
| Asn | Ala | Arg | Ile | Val | Leu | Gln | Ile | Asp | Asn | Ala | Arg | Leu | Ala | Ala | Asp | |
| | | | 150 | | | | | 155 | | | | | | 160 | | |
| gac | ttt | aga | gtc | aag | tat | gag | aca | gag | ctg | gcc | atg | cgc | cag | tct | gtg | 585 |
| Asp | Phe | Arg | Val | Lys | Tyr | Glu | Thr | Glu | Leu | Ala | Met | Arg | Gln | Ser | Val | |
| | | | 165 | | | | | 170 | | | | | | 175 | | |
| gag | aac | gac | atc | cat | ggg | ctc | cgc | aag | gtc | att | gat | gac | acc | aat | atc | 633 |
| Glu | Asn | Asp | Ile | His | Gly | Leu | Arg | Lys | Val | Ile | Asp | Asp | Thr | Asn | Ile | |
| | | | 180 | | | | | 185 | | | | | | 190 | | |
| aca | cga | ctg | cag | ctg | gag | aca | gag | atc | gag | gct | ctc | aag | gag | gag | ctg | 681 |
| Thr | Arg | Leu | Gln | Leu | Glu | Thr | Glu | Ile | Glu | Ala | Leu | Lys | Glu | Glu | Leu | |
| | | | 195 | | | | | 200 | | | | | | 205 | | |
| ctc | ttc | atg | aag | aag | aac | cac | gaa | gag | gaa | gta | aaa | ggc | cta | caa | gcc | 729 |
| Leu | Phe | Met | Lys | Lys | Asn | His | Glu | Glu | Glu | Val | Lys | Gly | Leu | Gln | Ala | |
| | | | 215 | | | | | | | 220 | | | | 225 | | |
| cag | att | gcc | agc | tct | ggg | ttg | acc | gtg | gag | gta | gat | gcc | ccc | aaa | tct | 777 |
| Gln | Ile | Ala | Ser | Ser | Gly | Leu | Thr | Val | Glu | Val | Asp | Ala | Pro | Lys | Ser | |
| | | | 230 | | | | | 235 | | | | | | 240 | | |
| cag | gac | ctc | gcc | aag | atc | atg | gca | gac | atc | cgg | gcc | caa | tat | gac | gag | 825 |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|-----|-----|
| Gln Asp Leu Ala Lys Ile Met Ala Asp Ile Arg Ala Gln Tyr Asp Glu | | | |
| 245 | 250 | | |
| ctg gct cgg aag aac cga gag gag cta gac aag tac tgg tct cag cag | 873 | | |
| Leu Ala Arg Lys Asn Arg Glu Glu Leu Asp Lys Tyr Trp Ser Gln Gln | | | |
| 260 | 270 | | |
| att gag gag agc acc aca gtg gtc acc aca cag tct gct gag gtt gga | 921 | | |
| Ile Glu Glu Ser Thr Thr Val Val Thr Thr Gln Ser Ala Glu Val Gly | | | |
| 275 | 280 | 285 | 290 |
| gct gct gag acg acg ctc aca gag ctg aga cgt aca gtc cag tcc ttg | 969 | | |
| Ala Ala Glu Thr Thr Leu Thr Glu Leu Arg Arg Thr Val Gln Ser Leu | | | |
| 295 | 300 | 305 | |
| gag atc gac ctg gac tcc atg aga aat ctg aag gcc agc ttg gag aac | 1017 | | |
| Glu Ile Asp Leu Asp Ser Met Arg Asn Leu Lys Ala Ser Leu Glu Asn | | | |
| 310 | 315 | 320 | |
| agc ctg agg gag gtg gag gcc cgc tac gcc cta cag atg gag cag ctc | 1065 | | |
| Ser Leu Arg Glu Val Glu Ala Arg Tyr Ala Leu Gln Met Glu Gln Leu | | | |
| 325 | 330 | 335 | |
| aac ggg atc ctg ctg cac ctt gag tca gag ctg gca cag acc cgg gca | 1113 | | |
| Asn Gly Ile Leu Leu His Leu Glu Ser Glu Leu Ala Gln Thr Arg Ala | | | |
| 340 | 345 | 350 | |
| gag gga cag cgc cag gcc cag gag tat gag gcc ctg ctg aac atc aag | 1161 | | |
| Glu Gly Gln Arg Gln Ala Gln Glu Tyr Glu Ala Leu Leu Asn Ile Lys | | | |
| 355 | 360 | 365 | 370 |
| gtc aag ctg gag gct gag atc gcc acc tac cgc cgc ctg ctg gaa gat | 1209 | | |

PH-1064PCT-US seq.TXT

Val Lys Leu Glu Ala Glu Ile Ala Thr Tyr Arg Arg Leu Leu Glu Asp
375 380 385
ggc gag gac ttt aat ctt ggt gat gcc ttg gac agc agc aac tcc atg 1257
Gly Glu Asp Phe Asn Leu Gly Asp Ala Leu Asp Ser Ser Asn Ser Met
390 395 400
caa acc atc caa aag acc acc acc cgc cgg ata gtg gat ggc aaa gtg 1305
Gln Thr Ile Gln Lys Thr Thr Thr Arg Arg Ile Val Asp Gly Lys Val
405 410 415
gtg tct gag acc aat gac acc aaa gtt ctg agg cat taagccagca 1351
Val Ser Glu Thr Asn Asp Thr Lys Val Leu Arg His
420 425 430
gaagcagggt accctttggg gagcaggagg ccaataaaaa gttcagagtt cattggatgt 1411
c 1412

<210> 90

<211> 430

<212> PRT

<213> Homo sapiens

<400> 90

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Ala Ser Val Tyr Ala Gly Ala Gly Gly Ser Gly Ser Arg Ile Ser Val

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|-----|
| 35 | | 40 | | 45 |
| Ser Arg Ser Thr Ser Phe Arg Gly Gly Met Gly Ser Gly Gly Leu Ala | | | | |
| 50 | | 55 | | 60 |
| Thr Gly Ile Ala Gly Gly Leu Ala Gly Met Gly Gly Ile Gln Asn Glu | | | | |
| 65 | | 70 | | 75 |
| | | | | 80 |
| Lys Glu Thr Met Gln Ser Leu Asn Asp Arg Leu Ala Ser Tyr Leu Asp | | | | |
| | 85 | | 90 | 95 |
| Arg Val Arg Ser Leu Glu Thr Glu Asn Arg Arg Leu Glu Ser Lys Ile | | | | |
| | 100 | | 105 | 110 |
| Arg Glu His Leu Glu Lys Lys Gly Pro Gln Val Arg Asp Trp Ser His | | | | |
| | 115 | | 120 | 125 |
| Tyr Phe Lys Ile Ile Glu Asp Leu Arg Ala Gln Ile Phe Ala Asn Thr | | | | |
| | 130 | | 135 | 140 |
| Val Asp Asn Ala Arg Ile Val Leu Gln Ile Asp Asn Ala Arg Leu Ala | | | | |
| 145 | | 150 | | 155 |
| | | | | 160 |
| Ala Asp Asp Phe Arg Val Lys Tyr Glu Thr Glu Leu Ala Met Arg Gln | | | | |
| | 165 | | 170 | 175 |
| Ser Val Glu Asn Asp Ile His Gly Leu Arg Lys Val Ile Asp Asp Thr | | | | |
| | 180 | | 185 | 190 |
| Asn Ile Thr Arg Leu Gln Leu Glu Thr Glu Ile Glu Ala Leu Lys Glu | | | | |
| | 195 | | 200 | 205 |
| Glu Leu Leu Phe Met Lys Lys Asn His Glu Glu Glu Val Lys Gly Leu | | | | |
| | 210 | | 215 | 220 |
| Gln Ala Gln Ile Ala Ser Ser Gly Leu Thr Val Glu Val Asp Ala Pro | | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|-----|
| 225 | 230 | 235 | 240 |
| Lys Ser Gln Asp Leu Ala Lys Ile Met Ala Asp Ile Arg Ala Gln Tyr | | | |
| | 245 | 250 | 255 |
| Asp Glu Leu Ala Arg Lys Asn Arg Glu Glu Leu Asp Lys Tyr Trp Ser | | | |
| | 260 | 265 | 270 |
| Gln Gln Ile Glu Glu Ser Thr Thr Val Val Thr Thr Gln Ser Ala Glu | | | |
| | 275 | 280 | 285 |
| Val Gly Ala Ala Glu Thr Thr Leu Thr Glu Leu Arg Arg Thr Val Gln | | | |
| | 290 | 295 | 300 |
| Ser Leu Glu Ile Asp Leu Asp Ser Met Arg Asn Leu Lys Ala Ser Leu | | | |
| 305 | 310 | 315 | 320 |
| Glu Asn Ser Leu Arg Glu Val Glu Ala Arg Tyr Ala Leu Gln Met Glu | | | |
| | 325 | 330 | 335 |
| Gln Leu Asn Gly Ile Leu Leu His Leu Glu Ser Glu Leu Ala Gln Thr | | | |
| | 340 | 345 | 350 |
| Arg Ala Glu Gly Gln Arg Gln Ala Gln Glu Tyr Glu Ala Leu Leu Asn | | | |
| | 355 | 360 | 365 |
| Ile Lys Val Lys Leu Glu Ala Glu Ile Ala Thr Tyr Arg Arg Leu Leu | | | |
| | 370 | 375 | 380 |
| Glu Asp Gly Glu Asp Phe Asn Leu Gly Asp Ala Leu Asp Ser Ser Asn | | | |
| 385 | 390 | 395 | 400 |
| Ser Met Gln Thr Ile Gln Lys Thr Thr Thr Arg Arg Ile Val Asp Gly | | | |
| | 405 | 410 | 415 |
| Lys Val Val Ser Glu Thr Asn Asp Thr Lys Val Leu Arg His | | | |

420

425

430

<210> 91

<211> 1040

<212> DNA

<213> Homo sapiens

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<222> (171)..(968)

<400> 91

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 ggtgcctgaa tgggaacccc ccgaagcgcc tgaaaaggag agacaggagg atg atg 176

Met Met

1

tcc cag ctg gag ctg ctg agt ggg gga gag atg ctg tgc ggt ggc ttc 224
 Ser Gln Leu Glu Leu Leu Ser Gly Gly Glu Met Leu Cys Gly Gly Phe

5

10

15

tac cct cgg ctg tcc tgc tgc ctg cgg agt gac agc ccg ggg cta ggg 272
 Tyr Pro Arg Leu Ser Cys Cys Leu Arg Ser Asp Ser Pro Gly Leu Gly

20

25

30

cgc ctg gag aat aag ata ttt tct gtt acc aac aac aca gaa tgt ggg 320
 Arg Leu Glu Asn Lys Ile Phe Ser Val Thr Asn Asn Thr Glu Cys Gly

35

40

45

50

aag tta ctg gag gaa atc aaa tgt gca ctt tgc tct cca cat tct caa 368

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Lys | Leu | Leu | Glu | Glu | Ile | Lys | Cys | Ala | Leu | Cys | Ser | Pro | His | Ser | Gln | | |
| 55 | | | | | 60 | | | | | 65 | | | | | | | |
| agc | ctg | ttc | cac | tca | cct | gag | aga | gaa | gtc | ttg | gaa | aga | gac | cta | gta | 416 | |
| Ser | Leu | Phe | His | Ser | Pro | Glu | Arg | Glu | Val | Leu | Glu | Arg | Asp | Leu | Val | | |
| 70 | | | | | 75 | | | | | 80 | | | | | | | |
| ctt | cct | ctg | ctc | tgc | aaa | gac | tat | tgc | aaa | gaa | ttc | ttt | tac | act | tgc | 464 | |
| Leu | Pro | Leu | Leu | Cys | Lys | Asp | Tyr | Cys | Lys | Glu | Phe | Phe | Tyr | Thr | Cys | | |
| 85 | | | | | 90 | | | | | 95 | | | | | | | |
| cga | ggc | cat | att | cca | ggg | ttc | ctt | caa | aca | act | gcg | gat | gag | ttt | tgc | 512 | |
| Arg | Gly | His | Ile | Pro | Gly | Phe | Leu | Gln | Thr | Thr | Ala | Asp | Glu | Phe | Cys | | |
| 100 | | | | | 105 | | | | | 110 | | | | | | | |
| ttt | tac | tat | gca | aga | aaa | gat | ggg | ggg | ttg | tgc | ttt | cca | gat | ttt | cca | 560 | |
| Phe | Tyr | Tyr | Ala | Arg | Lys | Asp | Gly | Gly | Leu | Cys | Phe | Pro | Asp | Phe | Pro | | |
| 115 | | | | | 120 | | | | | 125 | | | | | 130 | | |
| aga | aaa | caa | gtc | aga | gga | cca | gca | tct | aac | tac | ttg | gac | cag | atg | gaa | 608 | |
| Arg | Lys | Gln | Val | Arg | Gly | Pro | Ala | Ser | Asn | Tyr | Leu | Asp | Gln | Met | Glu | | |
| 135 | | | | | 140 | | | | | 145 | | | | | | | |
| gaa | tat | gac | aaa | gtg | gaa | gag | atc | agc | aga | aag | cac | aaa | cac | aac | tgc | 656 | |
| Glu | Tyr | Asp | Lys | Val | Glu | Glu | Ile | Ser | Arg | Lys | His | Lys | His | Asn | Cys | | |
| 150 | | | | | 155 | | | | | 160 | | | | | | | |
| ttc | tgt | att | cag | gag | gtt | gtg | agt | ggg | ctg | cgg | cag | ccc | gtt | ggg | gcc | 704 | |
| Phe | Cys | Ile | Gln | Glu | Val | Val | Ser | Gly | Leu | Arg | Gln | Pro | Val | Gly | Ala | | |
| 165 | | | | | 170 | | | | | 175 | | | | | | | |
| ctg | cat | agt | ggg | gat | ggc | tcg | caa | cgt | ctc | ttc | att | ctg | gaa | aaa | gaa | 752 | |

PH-1064PCT-US seq.TXT

Leu His Ser Gly Asp Gly Ser Gln Arg Leu Phe Ile Leu Glu Lys Glu
 180 185 190
 ggt tat gtg aag ata ctt acc cct gaa gga gaa att ttc aag gag cct 800
 Gly Tyr Val Lys Ile Leu Thr Pro Glu Gly Glu Ile Phe Lys Glu Pro
 195 200 205 210
 tat ttg gac att cac aaa ctt gtt caa agt gga ata aag gtt ggc ttt 848
 Tyr Leu Asp Ile His Lys Leu Val Gln Ser Gly Ile Lys Val Gly Phe
 215 220 225
 tta aat ttt att tat ttt tgt gct ggc tac gtt aat ttt att tta gtg 896
 Leu Asn Phe Ile Tyr Phe Cys Ala Gly Tyr Val Asn Phe Ile Leu Val
 230 235 240
 tta cct tcc tca ctg aag gta ttt ctt tgt aat aaa aga aag aat ctt 944
 Leu Pro Ser Ser Leu Lys Val Phe Leu Cys Asn Lys Arg Lys Asn Leu
 245 250 255
 gca gga gaa aat aag ggg gca aca taagaaacaa taattatggc acctgaatta 998
 Ala Gly Glu Asn Lys Gly Ala Thr
 260 265
 ggacagtgac attaaakgtt ggctktttaw attttaaaaa aa 1040

<210> 92

<211> 266

<212> PRT

<213> Homo sapiens

<400> 92

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| Met | Met | Ser | Gln | Leu | Glu | Leu | Leu | Ser | Gly | Gly | Glu | Met | Leu | Cys | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Phe | Tyr | Pro | Arg | Leu | Ser | Cys | Cys | Leu | Arg | Ser | Asp | Ser | Pro | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Gly | Arg | Leu | Glu | Asn | Lys | Ile | Phe | Ser | Val | Thr | Asn | Asn | Thr | Glu |
| | | | 35 | | | | 40 | | | | | | 45 | | |
| Cys | Gly | Lys | Leu | Leu | Glu | Glu | Ile | Lys | Cys | Ala | Leu | Cys | Ser | Pro | His |
| | 50 | | | | | | 55 | | | | | 60 | | | |
| Ser | Gln | Ser | Leu | Phe | His | Ser | Pro | Glu | Arg | Glu | Val | Leu | Glu | Arg | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Leu | Val | Leu | Pro | Leu | Leu | Cys | Lys | Asp | Tyr | Cys | Lys | Glu | Phe | Phe | Tyr |
| | | | | | 85 | | | | | 90 | | | | 95 | |
| Thr | Cys | Arg | Gly | His | Ile | Pro | Gly | Phe | Leu | Gln | Thr | Thr | Ala | Asp | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Cys | Phe | Tyr | Tyr | Ala | Arg | Lys | Asp | Gly | Gly | Leu | Cys | Phe | Pro | Asp |
| | | | 115 | | | | | 120 | | | | | 125 | | |
| Phe | Pro | Arg | Lys | Gln | Val | Arg | Gly | Pro | Ala | Ser | Asn | Tyr | Leu | Asp | Gln |
| | | | 130 | | | | 135 | | | | | | 140 | | |
| Met | Glu | Glu | Tyr | Asp | Lys | Val | Glu | Glu | Ile | Ser | Arg | Lys | His | Lys | His |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asn | Cys | Phe | Cys | Ile | Gln | Glu | Val | Val | Ser | Gly | Leu | Arg | Gln | Pro | Val |
| | | | | | 165 | | | | | 170 | | | | 175 | |
| Gly | Ala | Leu | His | Ser | Gly | Asp | Gly | Ser | Gln | Arg | Leu | Phe | Ile | Leu | Glu |
| | | | 180 | | | | | | 185 | | | | | 190 | |

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Lys Glu Gly Tyr Val Lys Ile Leu Thr Pro Glu Gly Glu Ile Phe Lys

195

200

205

Glu Pro Tyr Leu Asp Ile His Lys Leu Val Gln Ser Gly Ile Lys Val

210

215

220

Gly Phe Leu Asn Phe Ile Tyr Phe Cys Ala Gly Tyr Val Asn Phe Ile

225

230

235

240

Leu Val Leu Pro Ser Ser Leu Lys Val Phe Leu Cys Asn Lys Arg Lys

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<212> DNA

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<400> 93

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Met Thr Ser Lys Leu Ala Val Ala Leu Leu Ala Ala

1

5

10

ttc ctg att tct gca gct ctg tgt gaa ggt gca gtt ttg cca agg agt 158

Phe Leu Ile Ser Ala Ala Leu Cys Glu Gly Ala Val Leu Pro Arg Ser

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| gct aaa gaa ctt aga tgt cag tgc ata aag aca tac tcc aaa cct ttc | | | 206 |
| Ala Lys Glu Leu Arg Cys Gln Cys Ile Lys Thr Tyr Ser Lys Pro Phe | | | |
| 30 | 35 | 40 | |
| cac ccc aaa ttt atc aaa gaa ctg aga gtg att gag agt gga cca cac | | | 254 |
| His Pro Lys Phe Ile Lys Glu Leu Arg Val Ile Glu Ser Gly Pro His | | | |
| 45 | 50 | 55 | 60 |
| tgc gcc aac aca gaa att att gta aag ctt tct gat gga aga gag ctc | | | 302 |
| Cys Ala Asn Thr Glu Ile Ile Val Lys Leu Ser Asp Gly Arg Glu Leu | | | |
| | 65 | 70 | 75 |
| tgt ctg gac ccc aag gaa aac tgg gtg cag agg gtt gtg gag aag ttt | | | 350 |
| Cys Leu Asp Pro Lys Glu Asn Trp Val Gln Arg Val Val Glu Lys Phe | | | |
| 80 | 85 | 90 | |
| ttg aag agg gct gag aat tca taaaaaaatt cattctctgt ggtatccaag | | | 401 |
| Leu Lys Arg Ala Glu Asn Ser | | | |
| 95 | | | |
| aatcagtga gatgccagtg aaacttcaag caaatctact tcaacacttc atgtattgtg | | | 461 |
| tgggtctggt gtaggggttg cagatgcaat acaagattcc tggttaaatt tgaatttcag | | | 521 |
| taaacaatga atagtttttc attgtaccat gaaatatcca gaacatactt atatgtaaag | | | 581 |
| tattatttat ttgaatctac aaaaaacaac aaataatttt taaatataag gattttccta | | | 641 |
| gatattgcac gggagaatat acaaataagca aaattgagcc aagggcccaag agaatatccg | | | 701 |
| aactttaatt tcaggaattg aatggggttg ctagaatgtg atatttgaag catcacataa | | | 761 |
| aaatgatggg acaataaatt ttgccataaa gtcaaattta gctggaaatc ctggattttt | | | 821 |
| ttctgttaaa tctggcaacc ctagtctgct agccaggatc cacaagtcct tgttccactg | | | 881 |

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 tcaagtgtaa cttattaacc tatttattat ttatgtat^ott atttaagcat caaatatttg 1061
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 gtaaatttat tttatttttag atattaaatg atgttttatt agataaattt caatcaggg^ot 1181
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<210> 94

<211> 99

<212> PRT

<213> Homo sapiens

<400> 94

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| Met | Thr | Ser | Lys | Leu | Ala | Val | Ala | Leu | Leu | Ala | Ala | Phe | Leu | Ile | Ser |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Ala | Leu | Cys | Glu | Gly | Ala | Val | Leu | Pro | Arg | Ser | Ala | Lys | Glu | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Arg | Cys | Gln | Cys | Ile | Lys | Thr | Tyr | Ser | Lys | Pro | Phe | His | Pro | Lys | Phe |

PH-1064PCT-US seq.TXT

35

40

45

Ile Lys Glu Leu Arg Val Ile Glu Ser Gly Pro His Cys Ala Asn Thr

50

55

60

Glu Ile Ile Val Lys Leu Ser Asp Gly Arg Glu Leu Cys Leu Asp Pro

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Glu Asn Ser

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<222> (8)..(1945)

<400> 95

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Cys Cys Cys Cys Pro Arg Val Ala Gly Val Pro Gly Glu Ala Glu Gln

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Pro Ala Pro Glu Leu Val Glu Val Glu Val Gly Ser Thr Ala Leu Leu

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| aag tgc ggc ctc tcc cag tcc caa ggc aac ctc agc cat gtc gac tgg | | | | 193 |
| Lys Cys Gly Leu Ser Gln Ser Gln Gly Asn Leu Ser His Val Asp Trp | | | | |
| | 50 | 55 | 60 | |
| ttt tct gtc cac aag gag aag cgg acg ctc atc ttc cgt gtg cgc cag | | | | 241 |
| Phe Ser Val His Lys Glu Lys Arg Thr Leu Ile Phe Arg Val Arg Gln | | | | |
| | 65 | 70 | 75 | |
| ggc cag ggc cag agc gaa cct ggg gag tac gag cag cgg ctc agc ctc | | | | 289 |
| Gly Gln Gly Gln Ser Glu Pro Gly Glu Tyr Glu Gln Arg Leu Ser Leu | | | | |
| | 80 | 85 | 90 | |
| cag gac aga ggg gct act ctg gcc ctg act caa gtc acc ccc caa gac | | | | 337 |
| Gln Asp Arg Gly Ala Thr Leu Ala Leu Thr Gln Val Thr Pro Gln Asp | | | | |
| | 95 | 100 | 105 | 110 |
| gag cgc atc ttc ttg tgc cag ggc aag cgc cct cgg tcc cag gag tac | | | | 385 |
| Glu Arg Ile Phe Leu Cys Gln Gly Lys Arg Pro Arg Ser Gln Glu Tyr | | | | |
| | 115 | 120 | 125 | |
| cgc atc cag ctc cgc gtc tac aaa gct ccg gag gag cca aac atc cag | | | | 433 |
| Arg Ile Gln Leu Arg Val Tyr Lys Ala Pro Glu Glu Pro Asn Ile Gln | | | | |
| | 130 | 135 | 140 | |
| gtc aac ccc ctg ggc atc cct gtg aac agt aag gag cct gag gag gtc | | | | 481 |
| Val Asn Pro Leu Gly Ile Pro Val Asn Ser Lys Glu Pro Glu Glu Val | | | | |
| | 145 | 150 | 155 | |
| gct acc tgt gta ggg agg aac ggg tac ccc att cct caa gtc atc tgg | | | | 529 |
| Ala Thr Cys Val Gly Arg Asn Gly Tyr Pro Ile Pro Gln Val Ile Trp | | | | |

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| | | | |
|---|-----|-----|-----|
| 160 | 165 | 170 | |
| tac aag aat ggc cgg cct ctg aag gag gag aag aac cgg gtc cac att | 577 | | |
| Tyr Lys Asn Gly Arg Pro Leu Lys Glu Glu Lys Asn Arg Val His Ile | | | |
| 175 | 180 | 185 | 190 |
| cag tcg tcc cag act gtg gag tcg agt ggt ttg tac acc ttg cag agt | 625 | | |
| Gln Ser Ser Gln Thr Val Glu Ser Ser Gly Leu Tyr Thr Leu Gln Ser | | | |
| 195 | 200 | 205 | |
| att ctg aag gca cag ctg gtt aaa gaa gac aaa gat gcc cag ttt tac | 673 | | |
| Ile Leu Lys Ala Gln Leu Val Lys Glu Asp Lys Asp Ala Gln Phe Tyr | | | |
| 210 | 215 | 220 | |
| tgt gag ctc aac tac cgg ctg ccc agt ggg aac cac atg aag gag tcc | 721 | | |
| Cys Glu Leu Asn Tyr Arg Leu Pro Ser Gly Asn His Met Lys Glu Ser | | | |
| 225 | 230 | 235 | |
| agg gaa gtc acc gtc cct gtt ttc tac ccg aca gaa aaa gtg tgg ctg | 769 | | |
| Arg Glu Val Thr Val Pro Val Phe Tyr Pro Thr Glu Lys Val Trp Leu | | | |
| 240 | 245 | 250 | |
| gaa gtg gag ccc gtg gga atg ctg aag gaa ggg gac cgc gtg gaa atc | 817 | | |
| Glu Val Glu Pro Val Gly Met Leu Lys Glu Gly Asp Arg Val Glu Ile | | | |
| 255 | 260 | 265 | 270 |
| agg tgt ttg gct gat ggc aac cct cca cca cac ttc agc atc agc aag | 865 | | |
| Arg Cys Leu Ala Asp Gly Asn Pro Pro Pro His Phe Ser Ile Ser Lys | | | |
| 275 | 280 | 285 | |
| cag aac ccc agc acc agg gag gca gag gaa gag aca acc aac gac aac | 913 | | |
| Gln Asn Pro Ser Thr Arg Glu Ala Glu Glu Glu Thr Thr Asn Asp Asn | | | |

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| | | | |
|---|-----|-----|------|
| 290 | 295 | 300 | |
| ggg gtc ctg gtg ctg gag cct gcc cgg aag gaa cac agt ggg cgc tat | | | 961 |
| Gly Val Leu Val Leu Glu Pro Ala Arg Lys Glu His Ser Gly Arg Tyr | | | |
| 305 | 310 | 315 | |
| gaa tgt cag gcc tgg aac ttg gac acc atg ata tcg ctg ctg agt gaa | | | 1009 |
| Glu Cys Gln Ala Trp Asn Leu Asp Thr Met Ile Ser Leu Leu Ser Glu | | | |
| 320 | 325 | 330 | |
| cca cag gaa cta ctg gtg aac tat gtg tct gac gtc cga gtg agt ccc | | | 1057 |
| Pro Gln Glu Leu Leu Val Asn Tyr Val Ser Asp Val Arg Val Ser Pro | | | |
| 335 | 340 | 345 | 350 |
| gca gcc cct gag aga cag gaa ggc agc agc ctc acc ctg acc tgt gag | | | 1105 |
| Ala Ala Pro Glu Arg Gln Glu Gly Ser Ser Leu Thr Leu Thr Cys Glu | | | |
| 355 | 360 | 365 | |
| gca gag agt agc cag gac ctc gag ttc cag tgg ctg aga gaa gag aca | | | 1153 |
| Ala Glu Ser Ser Gln Asp Leu Glu Phe Gln Trp Leu Arg Glu Glu Thr | | | |
| 370 | 375 | 380 | |
| gac cag gtg ctg gaa agg ggg cct gtg ctt cag ttg cat gac ctg aaa | | | 1201 |
| Asp Gln Val Leu Glu Arg Gly Pro Val Leu Gln Leu His Asp Leu Lys | | | |
| 385 | 390 | 395 | |
| cgg gag gca gga ggc ggc tat cgc tgc gtg gcg tct gtg ccc agc ata | | | 1249 |
| Arg Glu Ala Gly Gly Gly Tyr Arg Cys Val Ala Ser Val Pro Ser Ile | | | |
| 400 | 405 | 410 | |
| ccc ggc ctg aac cgc aca cag ctg gtc aag ctg gcc att ttt ggc ccc | | | 1297 |
| Pro Gly Leu Asn Arg Thr Gln Leu Val Lys Leu Ala Ile Phe Gly Pro | | | |

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| | | | | |
|---|-----|-----|-----|------|
| 415 | 420 | 425 | 430 | |
| cct tgg atg gca ttc aag gag agg aag gtg tgg gtg aaa gag aat atg | | | | 1345 |
| Pro Trp Met Ala Phe Lys Glu Arg Lys Val Trp Val Lys Glu Asn Met | | | | |
| | 435 | 440 | 445 | |
| gtg ttg aat ctg tct tgt gaa gcg tca ggg cac ccc cgg ccc acc atc | | | | 1393 |
| Val Leu Asn Leu Ser Cys Glu Ala Ser Gly His Pro Arg Pro Thr Ile | | | | |
| | 450 | 455 | 460 | |
| tcc tgg aac gtc aac ggc acg gca agt gaa caa gac caa gat cca cag | | | | 1441 |
| Ser Trp Asn Val Asn Gly Thr Ala Ser Glu Gln Asp Gln Asp Pro Gln | | | | |
| | 465 | 470 | 475 | |
| cga gtc ctg agc acc ctg aat gtc ctc gtg acc ccg gag ctg ttg gag | | | | 1489 |
| Arg Val Leu Ser Thr Leu Asn Val Leu Val Thr Pro Glu Leu Leu Glu | | | | |
| | 480 | 485 | 490 | |
| aca ggt gtt gaa tgc acg gcc tcc aac gac ctg ggc aaa aac acc agc | | | | 1537 |
| Thr Gly Val Glu Cys Thr Ala Ser Asn Asp Leu Gly Lys Asn Thr Ser | | | | |
| 495 | 500 | 505 | 510 | |
| atc ctc ttc ctg gag ctg gtc aat tta acc acc ctc aca cca gac tcc | | | | 1585 |
| Ile Leu Phe Leu Glu Leu Val Asn Leu Thr Thr Leu Thr Pro Asp Ser | | | | |
| | 515 | 520 | 525 | |
| aac aca acc act ggc ctc agc act tcc act gcc agt cct cat acc aga | | | | 1633 |
| Asn Thr Thr Thr Gly Leu Ser Thr Ser Thr Ala Ser Pro His Thr Arg | | | | |
| | 530 | 535 | 540 | |
| gcc aac agc acc tcc aca gag aga aag ctg ccg gag ccg gag agc cgg | | | | 1681 |
| Ala Asn Ser Thr Ser Thr Glu Arg Lys Leu Pro Glu Pro Glu Ser Arg | | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 545 | 550 | 555 | |
| ggc gtg gtc atc gtg gct gtg att gtg tgc atc ctg gtc ctg gcg gtg | | | 1729 |
| Gly Val Val Ile Val Ala Val Ile Val Cys Ile Leu Val Leu Ala Val | | | |
| 560 | 565 | 570 | |
| ctg ggc gct gtc ctc tat ttc ctc tat aag aag ggc aag ctg ccg tgc | | | 1777 |
| Leu Gly Ala Val Leu Tyr Phe Leu Tyr Lys Lys Gly Lys Leu Pro Cys | | | |
| 575 | 580 | 585 | 590 |
| agg cgc tca ggg aag cag gag atc acg ctg ccc ccg tct cgt aag acc | | | 1825 |
| Arg Arg Ser Gly Lys Gln Glu Ile Thr Leu Pro Pro Ser Arg Lys Thr | | | |
| | 595 | 600 | 605 |
| gaa ctt gta gtt gaa gtt aag tca gat aag ctc cca gaa gag atg ggc | | | 1873 |
| Glu Leu Val Val Glu Val Lys Ser Asp Lys Leu Pro Glu Glu Met Gly | | | |
| | 610 | 615 | 620 |
| ctc ctg cag ggc agc agc ggt gac aag agg gct ccg gga gac cag gga | | | 1921 |
| Leu Leu Gln Gly Ser Ser Gly Asp Lys Arg Ala Pro Gly Asp Gln Gly | | | |
| | 625 | 630 | 635 |
| gag aaa tac atc gat ctg agg cat tagccccgaa tcacttcagc tcccttcct | | | 1975 |
| Glu Lys Tyr Ile Asp Leu Arg His | | | |
| 640 | 645 | | |
| gcctggacca ttcccagctc cctgctcact cttctctcag ccaaagctca aagggactag | | | 2035 |
| agagaagcct cctgctcccc tcgctgcac accccctttc agagggccac tgggttagga | | | 2095 |
| cctgaggacc tcacttggcc ctgcaaggcc cgcttttcag ggaccagtcc accaccatct | | | 2155 |
| cctccacgtt gagtgaagct catcccaagc aaggagcccc agtctcccga gcgggtagga | | | 2215 |
| gagtttcttg cagaacgtgt tttttcttta cacacattat gctgtaaata cgctcgtcct | | | 2275 |

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<211> 646

<212> PRT

<213> Homo sapiens

<400> 96

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PH-1064PCT-US seq.TXT

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| 1 | 5 | 10 | 15 |
| Cys Cys Pro Arg Val Ala Gly Val Pro Gly Glu Ala Glu Gln Pro Ala | | | |
| 20 | 25 | 30 | |
| Pro Glu Leu Val Glu Val Glu Val Gly Ser Thr Ala Leu Leu Lys Cys | | | |
| 35 | 40 | 45 | |
| Gly Leu Ser Gln Ser Gln Gly Asn Leu Ser His Val Asp Trp Phe Ser | | | |
| 50 | 55 | 60 | |
| Val His Lys Glu Lys Arg Thr Leu Ile Phe Arg Val Arg Gln Gly Gln | | | |
| 65 | 70 | 75 | 80 |
| Gly Gln Ser Glu Pro Gly Glu Tyr Glu Gln Arg Leu Ser Leu Gln Asp | | | |
| 85 | 90 | 95 | |
| Arg Gly Ala Thr Leu Ala Leu Thr Gln Val Thr Pro Gln Asp Glu Arg | | | |
| 100 | 105 | 110 | |
| Ile Phe Leu Cys Gln Gly Lys Arg Pro Arg Ser Gln Glu Tyr Arg Ile | | | |
| 115 | 120 | 125 | |
| Gln Leu Arg Val Tyr Lys Ala Pro Glu Glu Pro Asn Ile Gln Val Asn | | | |
| 130 | 135 | 140 | |
| Pro Leu Gly Ile Pro Val Asn Ser Lys Glu Pro Glu Glu Val Ala Thr | | | |
| 145 | 150 | 155 | 160 |
| Cys Val Gly Arg Asn Gly Tyr Pro Ile Pro Gln Val Ile Trp Tyr Lys | | | |
| 165 | 170 | 175 | |
| Asn Gly Arg Pro Leu Lys Glu Glu Lys Asn Arg Val His Ile Gln Ser | | | |
| 180 | 185 | 190 | |
| Ser Gln Thr Val Glu Ser Ser Gly Leu Tyr Thr Leu Gln Ser Ile Leu | | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 195 | 200 | 205 |
| Lys Ala Gln Leu Val Lys Glu Asp Lys Asp Ala Gln Phe Tyr Cys Glu | | |
| 210 | 215 | 220 |
| Leu Asn Tyr Arg Leu Pro Ser Gly Asn His Met Lys Glu Ser Arg Glu | | |
| 225 | 230 | 235 |
| Val Thr Val Pro Val Phe Tyr Pro Thr Glu Lys Val Trp Leu Glu Val | | |
| 245 | 250 | 255 |
| Glu Pro Val Gly Met Leu Lys Glu Gly Asp Arg Val Glu Ile Arg Cys | | |
| 260 | 265 | 270 |
| Leu Ala Asp Gly Asn Pro Pro Pro His Phe Ser Ile Ser Lys Gln Asn | | |
| 275 | 280 | 285 |
| Pro Ser Thr Arg Glu Ala Glu Glu Glu Thr Thr Asn Asp Asn Gly Val | | |
| 290 | 295 | 300 |
| Leu Val Leu Glu Pro Ala Arg Lys Glu His Ser Gly Arg Tyr Glu Cys | | |
| 305 | 310 | 315 |
| Gln Ala Trp Asn Leu Asp Thr Met Ile Ser Leu Leu Ser Glu Pro Gln | | |
| 325 | 330 | 335 |
| Glu Leu Leu Val Asn Tyr Val Ser Asp Val Arg Val Ser Pro Ala Ala | | |
| 340 | 345 | 350 |
| Pro Glu Arg Gln Glu Gly Ser Ser Leu Thr Leu Thr Cys Glu Ala Glu | | |
| 355 | 360 | 365 |
| Ser Ser Gln Asp Leu Glu Phe Gln Trp Leu Arg Glu Glu Thr Asp Gln | | |
| 370 | 375 | 380 |
| Val Leu Glu Arg Gly Pro Val Leu Gln Leu His Asp Leu Lys Arg Glu | | |

PH-1064PCT-US seq.TXT

| | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|
| 385 | | 390 | | 395 | | 400 |
| Ala | Gly | Gly | Gly | Tyr | Arg | Cys |
| | | | | 405 | | 410 |
| Leu | Asn | Arg | Thr | Gln | Leu | Val |
| | | | | 420 | | 425 |
| Met | Ala | Phe | Lys | Glu | Arg | Lys |
| | | | | 435 | | 440 |
| Asn | Leu | Ser | Cys | Glu | Ala | Ser |
| | | | | 450 | | 455 |
| Asn | Val | Asn | Gly | Thr | Ala | Ser |
| | | | | 465 | | 470 |
| Leu | Ser | Thr | Leu | Asn | Val | Leu |
| | | | | 485 | | 490 |
| Val | Glu | Cys | Thr | Ala | Ser | Asn |
| | | | | 500 | | 505 |
| Phe | Leu | Glu | Leu | Val | Asn | Leu |
| | | | | 515 | | 520 |
| Thr | Thr | Gly | Leu | Ser | Thr | Ser |
| | | | | 530 | | 535 |
| Ser | Thr | Ser | Thr | Glu | Arg | Lys |
| | | | | 545 | | 550 |
| Val | Ile | Val | Ala | Val | Ile | Val |
| | | | | 565 | | 570 |
| Ala | Val | Leu | Tyr | Phe | Leu | Tyr |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 580 | 585 | 590 |
| Ser Gly Lys Gln Glu Ile Thr Leu Pro Pro Ser Arg Lys Thr Glu Leu | | |
| 595 | 600 | 605 |
| Val Val Glu Val Lys Ser Asp Lys Leu Pro Glu Glu Met Gly Leu Leu | | |
| 610 | 615 | 620 |
| Gln Gly Ser Ser Gly Asp Lys Arg Ala Pro Gly Asp Gln Gly Glu Lys | | |
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<400> 97

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 ctgactttgg aaatctcggt taaccttcaa actggcg atg tca agg gtt cca agt 175

Met Ser Arg Val Pro Ser

1

5

cct cca cct ccg gca gaa atg tcg agt ggc ccc gta gct gag agt tgg 223
 Pro Pro Pro Pro Ala Glu Met Ser Ser Gly Pro Val Ala Glu Ser Trp

PH-1064PCT-US seq.TXT

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|---|-----|-----|----|
| 10 | 15 | 20 | |
| tgc tac aca cag atc aag gta gtg aaa ttc tcc tac atg tgg acc atc | 271 | | |
| Cys Tyr Thr Gln Ile Lys Val Val Lys Phe Ser Tyr Met Trp Thr Ile | | | |
| 25 | 30 | 35 | |
| aat aac ttt agc ttt tgc cgg gag gaa atg ggt gaa gtc att aaa agt | 319 | | |
| Asn Asn Phe Ser Phe Cys Arg Glu Glu Met Gly Glu Val Ile Lys Ser | | | |
| 40 | 45 | 50 | |
| tct aca ttt tca tca gga gca aat gat aaa ctg aaa tgg tgt ttg cga | 367 | | |
| Ser Thr Phe Ser Ser Gly Ala Asn Asp Lys Leu Lys Trp Cys Leu Arg | | | |
| 55 | 60 | 65 | 70 |
| gta aac ccc aaa ggg tta gat gaa gaa agc aaa gat tac ctg tca ctt | 415 | | |
| Val Asn Pro Lys Gly Leu Asp Glu Glu Ser Lys Asp Tyr Leu Ser Leu | | | |
| 75 | 80 | 85 | |
| tac ctg tta ctg gtc agc tgt cca aag agt gaa gtt cgg gca aaa ttc | 463 | | |
| Tyr Leu Leu Leu Val Ser Cys Pro Lys Ser Glu Val Arg Ala Lys Phe | | | |
| 90 | 95 | 100 | |
| aaa ttc tcc atc ctg aat gcc aag gga gaa gaa acc aaa gct atg gag | 511 | | |
| Lys Phe Ser Ile Leu Asn Ala Lys Gly Glu Glu Thr Lys Ala Met Glu | | | |
| 105 | 110 | 115 | |
| agt caa cgg gca tat agg ttt gtg caa ggc aaa gac tgg gga ttc aag | 559 | | |
| Ser Gln Arg Ala Tyr Arg Phe Val Gln Gly Lys Asp Trp Gly Phe Lys | | | |
| 120 | 125 | 130 | |
| aaa ttc atc cgt aga gat ttt ctt ttg gat gag gcc aac ggg ctt ctc | 607 | | |
| Lys Phe Ile Arg Arg Asp Phe Leu Leu Asp Glu Ala Asn Gly Leu Leu | | | |

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|--|
| 135 | 140 | 145 | 150 | |
| cct gat gac aag ctt acc ctc ttc tgc gag gtg agt gtt gtg caa gat | 655 | | | |
| Pro Asp Asp Lys Leu Thr Leu Phe Cys Glu Val Ser Val Val Gln Asp | | | | |
| | 155 | 160 | 165 | |
| tct gtc aac att tct ggc cag aat acc atg aac atg gta aag gtt cct | 703 | | | |
| Ser Val Asn Ile Ser Gly Gln Asn Thr Met Asn Met Val Lys Val Pro | | | | |
| | 170 | 175 | 180 | |
| gag tgc cgg ctg gca gat gag tta gga gga ctg tgg gag aat tcc cgg | 751 | | | |
| Glu Cys Arg Leu Ala Asp Glu Leu Gly Gly Leu Trp Glu Asn Ser Arg | | | | |
| | 185 | 190 | 195 | |
| ttc aca gac tgc tgc ttg tgt gtt gcc ggc cag gaa ttc cag gct cac | 799 | | | |
| Phe Thr Asp Cys Cys Leu Cys Val Ala Gly Gln Glu Phe Gln Ala His | | | | |
| | 200 | 205 | 210 | |
| aag gct atc tta gca gct cgt tct ccg gtt ttt agt gcc atg ttt gaa | 847 | | | |
| Lys Ala Ile Leu Ala Ala Arg Ser Pro Val Phe Ser Ala Met Phe Glu | | | | |
| 215 | 220 | 225 | 230 | |
| cat gaa atg gag gag agc aaa aag aat cga gtt gaa atc aat gat gtg | 895 | | | |
| His Glu Met Glu Glu Ser Lys Lys Asn Arg Val Glu Ile Asn Asp Val | | | | |
| | 235 | 240 | 245 | |
| gag cct gaa gtt ttt aag gaa atg atg tgc ttc att tac acg ggg aag | 943 | | | |
| Glu Pro Glu Val Phe Lys Glu Met Met Cys Phe Ile Tyr Thr Gly Lys | | | | |
| | 250 | 255 | 260 | |
| gct cca aac ctc gac aaa atg gct gat gat ttg ctg gca gct gct gac | 991 | | | |
| Ala Pro Asn Leu Asp Lys Met Ala Asp Asp Leu Leu Ala Ala Ala Asp | | | | |

PH-1064PCT-US seq.TXT

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|---|------|-----|-----|
| 265 | 270 | 275 | |
| aag tat gcc ctg gag cgc tta aag gtc atg tgt gag gat gcc ctc tgc | 1039 | | |
| Lys Tyr Ala Leu Glu Arg Leu Lys Val Met Cys Glu Asp Ala Leu Cys | | | |
| 280 | 285 | 290 | |
| agt aac ctg tcc gtg gag aac gct gca gaa att ctc atc ctg gcc gac | 1087 | | |
| Ser Asn Leu Ser Val Glu Asn Ala Ala Glu Ile Leu Ile Leu Ala Asp | | | |
| 295 | 300 | 305 | 310 |
| ctc cac agt gca gat cag ttg aaa act cag gca gtg gat ttc atc aac | 1135 | | |
| Leu His Ser Ala Asp Gln Leu Lys Thr Gln Ala Val Asp Phe Ile Asn | | | |
| 315 | 320 | 325 | |
| tat cat gct tcg gat gtc ttg gag acc tct ggg tgg aag tca atg gtg | 1183 | | |
| Tyr His Ala Ser Asp Val Leu Glu Thr Ser Gly Trp Lys Ser Met Val | | | |
| 330 | 335 | 340 | |
| gtg tca cat ccc cac ttg gtg gct gag gca tac cgc tct ctg gct tca | 1231 | | |
| Val Ser His Pro His Leu Val Ala Glu Ala Tyr Arg Ser Leu Ala Ser | | | |
| 345 | 350 | 355 | |
| gca cag tgc cct ttt ctg gga ccc cca cgc aaa cgc ctg aag caa tcc | 1279 | | |
| Ala Gln Cys Pro Phe Leu Gly Pro Pro Arg Lys Arg Leu Lys Gln Ser | | | |
| 360 | 365 | 370 | |
| taagatcctg cttgttgtaa gactccgttt aatttccaga agcagcagcc actgttgctg | 1339 | | |
| ccactgacca ccaggtagac agcgcaatct gtggagcttt tactctgttg tgagggggaag | 1399 | | |
| agactgcatt gtggccccag actttttaaaa cagcactaaa taacttgggg gaaacggggg | 1459 | | |
| gagggaaaat gaaatgaaaa ccctgttgct gcgtcactgt gttccctttg gcctgtctga | 1519 | | |
| gtttgatact gtgggggattc agtttaggcg ctggccccgag gatatcccag cggtggtact | 1579 | | |

PH-1064PCT-US seq.TXT

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<211> 374

<212> PRT

<213> Homo sapiens

<400> 98

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| Met | Ser | Arg | Val | Pro | Ser | Pro | Pro | Pro | Pro | Ala | Glu | Met | Ser | Ser | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Val | Ala | Glu | Ser | Trp | Cys | Tyr | Thr | Gln | Ile | Lys | Val | Val | Lys | Phe |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Tyr | Met | Trp | Thr | Ile | Asn | Asn | Phe | Ser | Phe | Cys | Arg | Glu | Glu | Met |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Gly | Glu | Val | Ile | Lys | Ser | Ser | Thr | Phe | Ser | Ser | Gly | Ala | Asn | Asp | Lys |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Leu | Lys | Trp | Cys | Leu | Arg | Val | Asn | Pro | Lys | Gly | Leu | Asp | Glu | Glu | Ser |
| 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| Lys | Asp | Tyr | Leu | Ser | Leu | Tyr | Leu | Leu | Leu | Val | Ser | Cys | Pro | Lys | Ser |
| | | | 85 | | | | | | 90 | | | | | 95 | |
| Glu | Val | Arg | Ala | Lys | Phe | Lys | Phe | Ser | Ile | Leu | Asn | Ala | Lys | Gly | Glu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Thr | Lys | Ala | Met | Glu | Ser | Gln | Arg | Ala | Tyr | Arg | Phe | Val | Gln | Gly |
| | | 115 | | | | | | 120 | | | | | 125 | | |

PH-1064PCT-US seq.TXT

Lys Asp Trp Gly Phe Lys Lys Phe Ile Arg Arg Asp Phe Leu Leu Asp
 130 135 140
 Glu Ala Asn Gly Leu Leu Pro Asp Asp Lys Leu Thr Leu Phe Cys Glu
 145 150 155 160
 Val Ser Val Val Gln Asp Ser Val Asn Ile Ser Gly Gln Asn Thr Met
 165 170 175
 Asn Met Val Lys Val Pro Glu Cys Arg Leu Ala Asp Glu Leu Gly Gly
 180 185 190
 Leu Trp Glu Asn Ser Arg Phe Thr Asp Cys Cys Leu Cys Val Ala Gly
 195 200 205
 Gln Glu Phe Gln Ala His Lys Ala Ile Leu Ala Ala Arg Ser Pro Val
 210 215 220
 Phe Ser Ala Met Phe Glu His Glu Met Glu Glu Ser Lys Lys Asn Arg
 225 230 235 240
 Val Glu Ile Asn Asp Val Glu Pro Glu Val Phe Lys Glu Met Met Cys
 245 250 255
 Phe Ile Tyr Thr Gly Lys Ala Pro Asn Leu Asp Lys Met Ala Asp Asp
 260 265 270
 Leu Leu Ala Ala Ala Asp Lys Tyr Ala Leu Glu Arg Leu Lys Val Met
 275 280 285
 Cys Glu Asp Ala Leu Cys Ser Asn Leu Ser Val Glu Asn Ala Ala Glu
 290 295 300
 Ile Leu Ile Leu Ala Asp Leu His Ser Ala Asp Gln Leu Lys Thr Gln
 305 310 315 320

PH-1064PCT-US seq.TXT

Ala Val Asp Phe Ile Asn Tyr His Ala Ser Asp Val Leu Glu Thr Ser

325

330

335

Gly Trp Lys Ser Met Val Val Ser His Pro His Leu Val Ala Glu Ala

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345

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360

365

Lys Arg Leu Lys Gln Ser

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<213> Homo sapiens

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<400> 99

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cgccgcgctc cggtacacac aggatccctg ctgggcacca acagctccac c atg ggg 117

Met Gly

1

ctg gcc tgg gga cta ggc gtc ctg ttc ctg atg cat gtg tgt ggc acc 165

Leu Ala Trp Gly Leu Gly Val Leu Phe Leu Met His Val Cys Gly Thr

5

10

15

aac cgc att cca gag tct ggc gga gac aac agc gtg ttt gac atc ttt 213

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Asn | Arg | Ile | Pro | Glu | Ser | Gly | Gly | Asp | Asn | Ser | Val | Phe | Asp | Ile | Phe | | |
| | 20 | | | | | 25 | | | | | 30 | | | | | | |
| gaa | ctc | acc | ggg | gcc | gcc | cgc | aag | ggg | tct | ggg | cgc | cga | ctg | gtg | aag | 261 | |
| Glu | Leu | Thr | Gly | Ala | Ala | Arg | Lys | Gly | Ser | Gly | Arg | Arg | Leu | Val | Lys | | |
| | 35 | | | | | 40 | | | | | 45 | | | | 50 | | |
| ggc | ccc | gac | cct | tcc | agc | cca | gct | ttc | cgc | atc | gag | gat | gcc | aac | ctg | 309 | |
| Gly | Pro | Asp | Pro | Ser | Ser | Pro | Ala | Phe | Arg | Ile | Glu | Asp | Ala | Asn | Leu | | |
| | | | | | 55 | | | | 60 | | | | | 65 | | | |
| atc | ccc | cct | gtg | cct | gat | gac | aag | ttc | caa | gac | ctg | gtg | gat | gct | gtg | 357 | |
| Ile | Pro | Pro | Val | Pro | Asp | Asp | Lys | Phe | Gln | Asp | Leu | Val | Asp | Ala | Val | | |
| | | | 70 | | | | | 75 | | | | | 80 | | | | |
| cgg | gca | gaa | aag | ggg | ttc | ctc | ctt | ctg | gca | tcc | ctg | agg | cag | atg | aag | 405 | |
| Arg | Ala | Glu | Lys | Gly | Phe | Leu | Leu | Leu | Ala | Ser | Leu | Arg | Gln | Met | Lys | | |
| | | 85 | | | | | | 90 | | | | | 95 | | | | |
| aag | acc | cgg | ggc | acg | ctg | ctg | gcc | ctg | gag | cgg | aaa | gac | cac | tct | ggc | 453 | |
| Lys | Thr | Arg | Gly | Thr | Leu | Leu | Ala | Leu | Glu | Arg | Lys | Asp | His | Ser | Gly | | |
| | 100 | | | | | | 105 | | | | | 110 | | | | | |
| cag | gtc | ttc | agc | gtg | gtg | tcc | aat | ggc | aag | gcg | ggc | acc | ctg | gac | ctc | 501 | |
| Gln | Val | Phe | Ser | Val | Val | Ser | Asn | Gly | Lys | Ala | Gly | Thr | Leu | Asp | Leu | | |
| | 115 | | | | | 120 | | | | | 125 | | | 130 | | | |
| agc | ctg | acc | gtc | caa | gga | aag | cag | cac | gtg | gtg | tct | gtg | gaa | gaa | gct | 549 | |
| Ser | Leu | Thr | Val | Gln | Gly | Lys | Gln | His | Val | Val | Ser | Val | Glu | Glu | Ala | | |
| | | | | 135 | | | | | 140 | | | | | 145 | | | |
| ctc | ctg | gca | acc | ggc | cag | tgg | aag | agc | atc | acc | ctg | ttt | gtg | cag | gaa | 597 | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Leu | Ala | Thr | Gly | Gln | Trp | Lys | Ser | Ile | Thr | Leu | Phe | Val | Gln | Glu | | |
| | | | 150 | | | | | 155 | | | | | 160 | | | | |
| gac | agg | gcc | cag | ctg | tac | atc | gac | tgt | gaa | aag | atg | gag | aat | gct | gag | 645 | |
| Asp | Arg | Ala | Gln | Leu | Tyr | Ile | Asp | Cys | Glu | Lys | Met | Glu | Asn | Ala | Glu | | |
| | | | 165 | | | | | 170 | | | | | 175 | | | | |
| ttg | gac | gtc | ccc | atc | caa | agc | gtc | ttc | acc | aga | gac | ctg | gcc | agc | atc | 693 | |
| Leu | Asp | Val | Pro | Ile | Gln | Ser | Val | Phe | Thr | Arg | Asp | Leu | Ala | Ser | Ile | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| gcc | aga | ctc | cgc | atc | gca | aag | ggg | ggc | gtc | aat | gac | aat | ttc | cag | ggg | 741 | |
| Ala | Arg | Leu | Arg | Ile | Ala | Lys | Gly | Gly | Val | Asn | Asp | Asn | Phe | Gln | Gly | | |
| | | | 195 | | | | | 200 | | | | | 205 | | 210 | | |
| gtg | ctg | cag | aat | gtg | agg | ttt | gtc | ttt | gga | acc | aca | cca | gaa | gac | atc | 789 | |
| Val | Leu | Gln | Asn | Val | Arg | Phe | Val | Phe | Gly | Thr | Thr | Pro | Glu | Asp | Ile | | |
| | | | | | | | 215 | | | | 220 | | | 225 | | | |
| ctc | agg | aac | aaa | ggc | tgc | tcc | agc | tct | acc | agt | gtc | ctc | ctc | acc | ctt | 837 | |
| Leu | Arg | Asn | Lys | Gly | Cys | Ser | Ser | Ser | Thr | Ser | Val | Leu | Leu | Thr | Leu | | |
| | | | 230 | | | | | 235 | | | | | 240 | | | | |
| gac | aac | aac | gtg | gtg | aat | ggt | tcc | agc | cct | gcc | atc | cgc | act | aac | tac | 885 | |
| Asp | Asn | Asn | Val | Val | Asn | Gly | Ser | Ser | Pro | Ala | Ile | Arg | Thr | Asn | Tyr | | |
| | | | 245 | | | | | 250 | | | | | 255 | | | | |
| att | ggc | cac | aag | aca | aag | gac | ttg | caa | gcc | atc | tgc | ggc | atc | tcc | tgt | 933 | |
| Ile | Gly | His | Lys | Thr | Lys | Asp | Leu | Gln | Ala | Ile | Cys | Gly | Ile | Ser | Cys | | |
| | | | 260 | | | | | 265 | | | | 270 | | | | | |
| gat | gag | ctg | tcc | agc | atg | gtc | ctg | gaa | ctc | agg | ggc | ctg | cgc | acc | att | 981 | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Asp | Glu | Leu | Ser | Ser | Met | Val | Leu | Glu | Leu | Arg | Gly | Leu | Arg | Thr | Ile | | |
| 275 | | | | | 280 | | | | | 285 | | | | | 290 | | |
| gtg | acc | acg | ctg | cag | gac | agc | atc | cgc | aaa | gtg | act | gaa | gag | aac | aaa | 1029 | |
| Val | Thr | Thr | Leu | Gln | Asp | Ser | Ile | Arg | Lys | Val | Thr | Glu | Glu | Asn | Lys | | |
| | | | 295 | | | | | 300 | | | | | | 305 | | | |
| gag | ttg | gcc | aat | gag | ctg | agg | cgg | cct | ccc | cta | tgc | tat | cac | aac | gga | 1077 | |
| Glu | Leu | Ala | Asn | Glu | Leu | Arg | Arg | Pro | Pro | Leu | Cys | Tyr | His | Asn | Gly | | |
| | | 310 | | | | | | 315 | | | | | 320 | | | | |
| gtt | cag | tac | aga | aat | aac | gag | gaa | tgg | act | gtt | gat | agc | tgc | act | gag | 1125 | |
| Val | Gln | Tyr | Arg | Asn | Asn | Glu | Glu | Trp | Thr | Val | Asp | Ser | Cys | Thr | Glu | | |
| | | 325 | | | | | | 330 | | | | | 335 | | | | |
| tgt | cac | tgt | cag | aac | tca | gtt | acc | atc | tgc | aaa | aag | gtg | tcc | tgc | ccc | 1173 | |
| Cys | His | Cys | Gln | Asn | Ser | Val | Thr | Ile | Cys | Lys | Lys | Val | Ser | Cys | Pro | | |
| | | 340 | | | | | | 345 | | | | | 350 | | | | |
| atc | atg | ccc | tgc | tcc | aat | gcc | aca | gtt | cct | gat | gga | gaa | tgc | tgt | cct | 1221 | |
| Ile | Met | Pro | Cys | Ser | Asn | Ala | Thr | Val | Pro | Asp | Gly | Glu | Cys | Cys | Pro | | |
| | | 355 | | | | | | 360 | | | | | 365 | | 370 | | |
| cgc | tgt | tgg | ccc | agc | gac | tct | gcg | gac | gat | ggc | tgg | tct | cca | tgg | tcc | 1269 | |
| Arg | Cys | Trp | Pro | Ser | Asp | Ser | Ala | Asp | Asp | Gly | Trp | Ser | Pro | Trp | Ser | | |
| | | | 375 | | | | | 380 | | | | | 385 | | | | |
| gag | tgg | acc | tcc | tgt | tct | acg | agc | tgt | ggc | aat | gga | att | cag | cag | cgc | 1317 | |
| Glu | Trp | Thr | Ser | Cys | Ser | Thr | Ser | Cys | Gly | Asn | Gly | Ile | Gln | Gln | Arg | | |
| | | | 390 | | | | | 395 | | | | | 400 | | | | |
| ggc | cgc | tcc | tgc | gat | agc | ctc | aac | aac | cga | tgt | gag | ggc | tcc | tcg | gtc | 1365 | |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Gly | Arg | Ser | Cys | Asp | Ser | Leu | Asn | Asn | Arg | Cys | Glu | Gly | Ser | Ser | Val | | |
| | | 405 | | | | | 410 | | | | | 415 | | | | | |
| cag | aca | cgg | acc | tgc | cac | att | cag | gag | tgt | gac | aaa | aga | ttt | aaa | cag | 1413 | |
| Gln | Thr | Arg | Thr | Cys | His | Ile | Gln | Glu | Cys | Asp | Lys | Arg | Phe | Lys | Gln | | |
| | | 420 | | | | | 425 | | | | | 430 | | | | | |
| gat | ggt | ggc | tgg | agc | cac | tgg | tcc | ccg | tgg | tca | tct | tgt | tct | gtg | aca | 1461 | |
| Asp | Gly | Gly | Trp | Ser | His | Trp | Ser | Pro | Trp | Ser | Ser | Cys | Ser | Val | Thr | | |
| | | 435 | | | | 440 | | | | | 445 | | | | 450 | | |
| tgt | ggt | gat | ggt | gtg | atc | aca | agg | atc | cgg | ctc | tgc | aac | tct | ccc | agc | 1509 | |
| Cys | Gly | Asp | Gly | Val | Ile | Thr | Arg | Ile | Arg | Leu | Cys | Asn | Ser | Pro | Ser | | |
| | | | | 455 | | | | | 460 | | | | | 465 | | | |
| ccc | cag | atg | aat | ggg | aaa | ccc | tgt | gaa | ggc | gaa | gcg | cgg | gag | acc | aaa | 1557 | |
| Pro | Gln | Met | Asn | Gly | Lys | Pro | Cys | Glu | Gly | Glu | Ala | Arg | Glu | Thr | Lys | | |
| | | | | 470 | | | | | 475 | | | | | 480 | | | |
| gcc | tgc | aag | aaa | gac | gcc | tgc | ccc | atc | aat | gga | ggc | tgg | ggt | cct | tgg | 1605 | |
| Ala | Cys | Lys | Lys | Asp | Ala | Cys | Pro | Ile | Asn | Gly | Gly | Trp | Gly | Pro | Trp | | |
| | | 485 | | | | | 490 | | | | | 495 | | | | | |
| tca | cca | tgg | gac | atc | tgt | tct | gtc | acc | tgt | gga | gga | ggg | gta | cag | aaa | 1653 | |
| Ser | Pro | Trp | Asp | Ile | Cys | Ser | Val | Thr | Cys | Gly | Gly | Gly | Val | Gln | Lys | | |
| | | 500 | | | | | 505 | | | | | 510 | | | | | |
| cgt | agt | cgt | ctc | tgc | aac | aac | ccc | gca | ccc | cag | ttt | gga | ggc | aag | gac | 1701 | |
| Arg | Ser | Arg | Leu | Cys | Asn | Asn | Pro | Ala | Pro | Gln | Phe | Gly | Gly | Lys | Asp | | |
| | | 515 | | | | 520 | | | | 525 | | | | 530 | | | |
| tgc | gtt | ggt | gat | gta | aca | gaa | aac | cag | atc | tgc | aac | aag | cag | gac | tgt | 1749 | |

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| | |
|---|------|
| Cys Val Gly Asp Val Thr Glu Asn Gln Ile Cys Asn Lys Gln Asp Cys | |
| 535 | 540 |
| cca att gat gga tgc ctg tcc aat ccc tgc ttt gcc ggc gtg aag tgt | 1797 |
| Pro Ile Asp Gly Cys Leu Ser Asn Pro Cys Phe Ala Gly Val Lys Cys | |
| 550 | 555 |
| act agc tac cct gat ggc agc tgg aaa tgt ggt gct tgt ccc cct ggt | 1845 |
| Thr Ser Tyr Pro Asp Gly Ser Trp Lys Cys Gly Ala Cys Pro Pro Gly | |
| 565 | 570 |
| tac agt gga aat ggc atc cag tgc aca gat gtt gat gag tgc aaa gaa | 1893 |
| Tyr Ser Gly Asn Gly Ile Gln Cys Thr Asp Val Asp Glu Cys Lys Glu | |
| 580 | 585 |
| gtg cct gat gcc tgc ttc aac cac aat gga gag cac cgg tgt gag aac | 1941 |
| Val Pro Asp Ala Cys Phe Asn His Asn Gly Glu His Arg Cys Glu Asn | |
| 595 | 600 |
| acg gac ccc ggc tac aac tgc ctg ccc tgc ccc cca cgc ttc acc ggc | 1989 |
| Thr Asp Pro Gly Tyr Asn Cys Leu Pro Cys Pro Pro Arg Phe Thr Gly | |
| 615 | 620 |
| tca cag ccc ttc ggc cag ggt gtc gaa cat gcc acg gcc aac aaa cag | 2037 |
| Ser Gln Pro Phe Gly Gln Gly Val Glu His Ala Thr Ala Asn Lys Gln | |
| 630 | 635 |
| gtg tgc aag ccc cgt aac ccc tgc acg gat ggg acc cac gac tgc aac | 2085 |
| Val Cys Lys Pro Arg Asn Pro Cys Thr Asp Gly Thr His Asp Cys Asn | |
| 645 | 650 |
| aag aac gcc aag tgc aac tac ctg ggc cac tat agc gac ccc atg tac | 2133 |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Lys | Asn | Ala | Lys | Cys | Asn | Tyr | Leu | Gly | His | Tyr | Ser | Asp | Pro | Met | Tyr | | |
| 660 | | | | | | 665 | | | | | 670 | | | | | | |
| cgc | tgc | gag | tgc | aag | cct | ggc | tac | gct | ggc | aat | ggc | atc | atc | tgc | ggg | 2181 | |
| Arg | Cys | Glu | Cys | Lys | Pro | Gly | Tyr | Ala | Gly | Asn | Gly | Ile | Ile | Cys | Gly | | |
| 675 | | | | | 680 | | | | | 685 | | | | | 690 | | |
| gag | gac | aca | gac | ctg | gat | ggc | tgg | ccc | aat | gag | aac | ctg | gtg | tgc | gtg | 2229 | |
| Glu | Asp | Thr | Asp | Leu | Asp | Gly | Trp | Pro | Asn | Glu | Asn | Leu | Val | Cys | Val | | |
| | | | | 695 | | | | | 700 | | | | | 705 | | | |
| gcc | aat | gcg | act | tac | cac | tgc | aaa | aag | gat | aat | tgc | ccc | aac | ctt | ccc | 2277 | |
| Ala | Asn | Ala | Thr | Tyr | His | Cys | Lys | Lys | Asp | Asn | Cys | Pro | Asn | Leu | Pro | | |
| | | | 710 | | | | | 715 | | | | | | 720 | | | |
| aac | tca | ggg | cag | gaa | gac | tat | gac | aag | gat | gga | att | ggt | gat | gcc | tgt | 2325 | |
| Asn | Ser | Gly | Gln | Glu | Asp | Tyr | Asp | Lys | Asp | Gly | Ile | Gly | Asp | Ala | Cys | | |
| | | 725 | | | | | | 730 | | | | | | 735 | | | |
| gat | gat | gac | gat | gac | aat | gat | aaa | att | cca | gat | gac | agg | gac | aac | tgt | 2373 | |
| Asp | Asp | Asp | Asp | Asp | Asn | Asp | Lys | Ile | Pro | Asp | Asp | Arg | Asp | Asn | Cys | | |
| | | 740 | | | | | | 745 | | | | | | 750 | | | |
| cca | ttc | cat | tac | aac | cca | gct | cag | tat | gac | tat | gac | aga | gat | gat | gtg | 2421 | |
| Pro | Phe | His | Tyr | Asn | Pro | Ala | Gln | Tyr | Asp | Tyr | Asp | Arg | Asp | Asp | Val | | |
| 755 | | | | | 760 | | | | | | 765 | | | | 770 | | |
| gga | gac | cgc | tgt | gac | aac | tgt | ccc | tac | aac | cac | aac | cca | gat | cag | gca | 2469 | |
| Gly | Asp | Arg | Cys | Asp | Asn | Cys | Pro | Tyr | Asn | His | Asn | Pro | Asp | Gln | Ala | | |
| | | | | 775 | | | | | | 780 | | | | 785 | | | |
| gac | aca | gac | aac | aat | ggg | gaa | gga | gac | gcc | tgt | gct | gca | gac | att | gat | 2517 | |

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| | |
|---|------|
| Asp Thr Asp Asn Asn Gly Glu Gly Asp Ala Cys Ala Ala Asp Ile Asp | |
| 790 | 795 |
| 800 | |
| gga gac ggt atc ctc aat gaa cgg gac aac tgc cag tac gtc tac aat | 2565 |
| Gly Asp Gly Ile Leu Asn Glu Arg Asp Asn Cys Gln Tyr Val Tyr Asn | |
| 805 | 810 |
| 815 | |
| gtg gac cag aga gac act gat atg gat ggg gtt gga gat cag tgt gac | 2613 |
| Val Asp Gln Arg Asp Thr Asp Met Asp Gly Val Gly Asp Gln Cys Asp | |
| 820 | 825 |
| 830 | |
| aat tgc ccc ttg gaa cac aat ccg gat cag ctg gac tct gac tca gac | 2661 |
| Asn Cys Pro Leu Glu His Asn Pro Asp Gln Leu Asp Ser Asp Ser Asp | |
| 835 | 840 |
| 845 | 850 |
| cgc att gga gat acc tgt gac aac aat cag gat att gat gaa gat ggc | 2709 |
| Arg Ile Gly Asp Thr Cys Asp Asn Asn Gln Asp Ile Asp Glu Asp Gly | |
| 855 | 860 |
| 865 | |
| cac cag aac aat ctg gac aac tgt ccc tat gtg ccc aat gcc aac cag | 2757 |
| His Gln Asn Asn Leu Asp Asn Cys Pro Tyr Val Pro Asn Ala Asn Gln | |
| 870 | 875 |
| 880 | |
| gct gac cat gac aaa gat ggc aag gga gat gcc tgt gac cac gat gat | 2805 |
| Ala Asp His Asp Lys Asp Gly Lys Gly Asp Ala Cys Asp His Asp Asp | |
| 885 | 890 |
| 895 | |
| gac aac gat ggc att cct gat gac aag gac aac tgc aga ctc gtg ccc | 2853 |
| Asp Asn Asp Gly Ile Pro Asp Asp Lys Asp Asn Cys Arg Leu Val Pro | |
| 900 | 905 |
| 910 | |
| aat ccc gac cag aag gac tct gac ggc gat ggt cga ggt gat gcc tgc | 2901 |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|------|------|--|
| Asn | Pro | Asp | Gln | Lys | Asp | Ser | Asp | Gly | Asp | Gly | Arg | Gly | Asp | Ala | Cys | | |
| 915 | | | | | 920 | | | | | 925 | | | | | 930 | | |
| aaa | gat | gat | ttt | gac | cat | gac | agt | gtg | cca | gac | atc | gat | gac | atc | tgt | 2949 | |
| Lys | Asp | Asp | Phe | Asp | His | Asp | Ser | Val | Pro | Asp | Ile | Asp | Asp | Ile | Cys | | |
| | | | | 935 | | | | | 940 | | | | | | 945 | | |
| cct | gag | aat | gtt | gac | atc | agt | gag | acc | gat | ttc | cgc | cga | ttc | cag | atg | 2997 | |
| Pro | Glu | Asn | Val | Asp | Ile | Ser | Glu | Thr | Asp | Phe | Arg | Arg | Phe | Gln | Met | | |
| | | | | 950 | | | | | 955 | | | | | | 960 | | |
| att | cct | ctg | gac | ccc | aaa | ggg | aca | tcc | caa | aat | gac | cct | aac | tgg | gtt | 3045 | |
| Ile | Pro | Leu | Asp | Pro | Lys | Gly | Thr | Ser | Gln | Asn | Asp | Pro | Asn | Trp | Val | | |
| | | | | 965 | | | | | 970 | | | | | | 975 | | |
| gta | cgc | cat | cag | ggg | aaa | gaa | ctc | gtc | cag | act | gtc | aac | tgt | gat | cct | 3093 | |
| Val | Arg | His | Gln | Gly | Lys | Glu | Leu | Val | Gln | Thr | Val | Asn | Cys | Asp | Pro | | |
| | | | | 980 | | | | | 985 | | | | | | 990 | | |
| gga | ctc | gct | gta | ggg | tat | gat | gag | ttt | aat | gct | gtg | gac | ttc | agt | ggc | 3141 | |
| Gly | Leu | Ala | Val | Gly | Tyr | Asp | Glu | Phe | Asn | Ala | Val | Asp | Phe | Ser | Gly | | |
| 995 | | | | 1000 | | | | | 1005 | | | | | | 1010 | | |
| acc | ttc | ttc | atc | aac | acc | gaa | agg | gac | gat | gac | tat | gct | gga | ttt | gtc | 3189 | |
| Thr | Phe | Phe | Ile | Asn | Thr | Glu | Arg | Asp | Asp | Asp | Tyr | Ala | Gly | Phe | Val | | |
| | | | | 1015 | | | | | 1020 | | | | | | 1025 | | |
| ttt | ggc | tac | cag | tcc | agc | agc | cgc | ttt | tat | gtt | gtg | atg | tgg | aag | caa | 3237 | |
| Phe | Gly | Tyr | Gln | Ser | Ser | Ser | Arg | Phe | Tyr | Val | Val | Met | Trp | Lys | Gln | | |
| | | | | 1030 | | | | | 1035 | | | | | | 1040 | | |
| gtc | acc | cag | tcc | tac | tgg | gac | acc | aac | ccc | acg | agg | gct | cag | gga | tac | 3285 | |

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| | |
|---|------|
| Val Thr Gln Ser Tyr Trp Asp Thr Asn Pro Thr Arg Ala Gln Gly Tyr | |
| 1045 | 1050 |
| 1055 | |
| tcg ggc ctt tct gtg aaa gtt gta aac tcc acc aca ggg cct ggc gag | 3333 |
| Ser Gly Leu Ser Val Lys Val Val Asn Ser Thr Thr Gly Pro Gly Glu | |
| 1060 | 1065 |
| 1070 | |
| cac ctg cgg aac gcc ctg tgg cac aca gga aac acc cct ggc cag gtg | 3381 |
| His Leu Arg Asn Ala Leu Trp His Thr Gly Asn Thr Pro Gly Gln Val | |
| 1075 | 1080 |
| 1085 | 1090 |
| cgc acc ctg tgg cat gac cct cgt cac ata ggc tgg aaa gat ttc acc | 3429 |
| Arg Thr Leu Trp His Asp Pro Arg His Ile Gly Trp Lys Asp Phe Thr | |
| 1095 | 1100 |
| 1105 | |
| gcc tac aga tgg cgt ctc agc cac agg cca aag acg ggt ttc att aga | 3477 |
| Ala Tyr Arg Trp Arg Leu Ser His Arg Pro Lys Thr Gly Phe Ile Arg | |
| 1110 | 1115 |
| 1120 | |
| gtg gtg atg tat gaa ggg aag aaa atc atg gct gac tca gga ccc atc | 3525 |
| Val Val Met Tyr Glu Gly Lys Lys Ile Met Ala Asp Ser Gly Pro Ile | |
| 1125 | 1130 |
| 1135 | |
| tat gat aaa acc tat gct ggt ggt aga cta ggg ttg ttt gtc ttc tct | 3573 |
| Tyr Asp Lys Thr Tyr Ala Gly Gly Arg Leu Gly Leu Phe Val Phe Ser | |
| 1140 | 1145 |
| 1150 | |
| caa gaa atg gtg ttc ttc tct gac ctg aaa tac gaa tgt aga gat ccc | 3621 |
| Gln Glu Met Val Phe Phe Ser Asp Leu Lys Tyr Glu Cys Arg Asp Pro | |
| 1155 | 1160 |
| 1165 | 1170 |
| taatcatcaa attggttgatt gaaagactga tcataaacca atgctgggtat tgcaccttct | 3681 |

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ggaactatgg gcttgagaaa acccccagga tcactttctcc ttggcttcct tcttttctgt 3741
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aggtgaaact tacatacaaa tattaccta tttgttgtgt gactgagtaa agaatttttg 5181
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t 5722

<210> 100

<211> 1170

<212> PRT

<213> Homo sapiens

<400> 100

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Leu | Ala | Trp | Gly | Leu | Gly | Val | Leu | Phe | Leu | Met | His | Val | Cys |
| 1 | | | | | 5 | | | | 10 | | | | | 15 | |
| Gly | Thr | Asn | Arg | Ile | Pro | Glu | Ser | Gly | Gly | Asp | Asn | Ser | Val | Phe | Asp |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Ile | Phe | Glu | Leu | Thr | Gly | Ala | Ala | Arg | Lys | Gly | Ser | Gly | Arg | Arg | Leu |
| | | | 35 | | | | | 40 | | | | | 45 | | |
| Val | Lys | Gly | Pro | Asp | Pro | Ser | Ser | Pro | Ala | Phe | Arg | Ile | Glu | Asp | Ala |

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| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 50 | | 55 | | 60 | | | | | | | | | | | |
| Asn | Leu | Ile | Pro | Pro | Val | Pro | Asp | Asp | Lys | Phe | Gln | Asp | Leu | Val | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Ala | Val | Arg | Ala | Glu | Lys | Gly | Phe | Leu | Leu | Leu | Ala | Ser | Leu | Arg | Gln |
| | | | | 85 | | | | | | 90 | | | | | 95 |
| Met | Lys | Lys | Thr | Arg | Gly | Thr | Leu | Leu | Ala | Leu | Glu | Arg | Lys | Asp | His |
| | | | 100 | | | | | | 105 | | | | | 110 | |
| Ser | Gly | Gln | Val | Phe | Ser | Val | Val | Ser | Asn | Gly | Lys | Ala | Gly | Thr | Leu |
| | | 115 | | | | | | | 120 | | | | | 125 | |
| Asp | Leu | Ser | Leu | Thr | Val | Gln | Gly | Lys | Gln | His | Val | Val | Ser | Val | Glu |
| | 130 | | | | | 135 | | | | | | | 140 | | |
| Glu | Ala | Leu | Leu | Ala | Thr | Gly | Gln | Trp | Lys | Ser | Ile | Thr | Leu | Phe | Val |
| 145 | | | | 150 | | | | | | 155 | | | | | 160 |
| Gln | Glu | Asp | Arg | Ala | Gln | Leu | Tyr | Ile | Asp | Cys | Glu | Lys | Met | Glu | Asn |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Ala | Glu | Leu | Asp | Val | Pro | Ile | Gln | Ser | Val | Phe | Thr | Arg | Asp | Leu | Ala |
| | | 180 | | | | | | | 185 | | | | | 190 | |
| Ser | Ile | Ala | Arg | Leu | Arg | Ile | Ala | Lys | Gly | Gly | Val | Asn | Asp | Asn | Phe |
| | | 195 | | | | | | 200 | | | | | | 205 | |
| Gln | Gly | Val | Leu | Gln | Asn | Val | Arg | Phe | Val | Phe | Gly | Thr | Thr | Pro | Glu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Ile | Leu | Arg | Asn | Lys | Gly | Cys | Ser | Ser | Ser | Thr | Ser | Val | Leu | Leu |
| 225 | | | | 230 | | | | | | 235 | | | | | 240 |
| Thr | Leu | Asp | Asn | Asn | Val | Val | Asn | Gly | Ser | Ser | Pro | Ala | Ile | Arg | Thr |

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| | | |
|---|-----|-----|
| 245 | 250 | 255 |
| Asn Tyr Ile Gly His Lys Thr Lys Asp Leu Gln Ala Ile Cys Gly Ile | | |
| 260 | 265 | 270 |
| Ser Cys Asp Glu Leu Ser Ser Met Val Leu Glu Leu Arg Gly Leu Arg | | |
| 275 | 280 | 285 |
| Thr Ile Val Thr Thr Leu Gln Asp Ser Ile Arg Lys Val Thr Glu Glu | | |
| 290 | 295 | 300 |
| Asn Lys Glu Leu Ala Asn Glu Leu Arg Arg Pro Pro Leu Cys Tyr His | | |
| 305 | 310 | 315 |
| Asn Gly Val Gln Tyr Arg Asn Asn Glu Glu Trp Thr Val Asp Ser Cys | | |
| 325 | 330 | 335 |
| Thr Glu Cys His Cys Gln Asn Ser Val Thr Ile Cys Lys Lys Val Ser | | |
| 340 | 345 | 350 |
| Cys Pro Ile Met Pro Cys Ser Asn Ala Thr Val Pro Asp Gly Glu Cys | | |
| 355 | 360 | 365 |
| Cys Pro Arg Cys Trp Pro Ser Asp Ser Ala Asp Asp Gly Trp Ser Pro | | |
| 370 | 375 | 380 |
| Trp Ser Glu Trp Thr Ser Cys Ser Thr Ser Cys Gly Asn Gly Ile Gln | | |
| 385 | 390 | 395 |
| Gln Arg Gly Arg Ser Cys Asp Ser Leu Asn Asn Arg Cys Glu Gly Ser | | |
| 405 | 410 | 415 |
| Ser Val Gln Thr Arg Thr Cys His Ile Gln Glu Cys Asp Lys Arg Phe | | |
| 420 | 425 | 430 |
| Lys Gln Asp Gly Gly Trp Ser His Trp Ser Pro Trp Ser Ser Cys Ser | | |

PH-1064PCT-US seq.TXT

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|---|-----|-----|-----|-----|
| 435 | | 440 | | 445 |
| Val Thr Cys Gly Asp Gly Val Ile Thr Arg Ile Arg Leu Cys Asn Ser | | | | |
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| Pro Ser Pro Gln Met Asn Gly Lys Pro Cys Glu Gly Glu Ala Arg Glu | | | | |
| 465 | | 470 | | 475 |
| Thr Lys Ala Cys Lys Lys Asp Ala Cys Pro Ile Asn Gly Gly Trp Gly | | | | |
| | 485 | | 490 | |
| Pro Trp Ser Pro Trp Asp Ile Cys Ser Val Thr Cys Gly Gly Gly Val | | | | |
| | 500 | | 505 | |
| Gln Lys Arg Ser Arg Leu Cys Asn Asn Pro Ala Pro Gln Phe Gly Gly | | | | |
| | 515 | | 520 | |
| Lys Asp Cys Val Gly Asp Val Thr Glu Asn Gln Ile Cys Asn Lys Gln | | | | |
| | 530 | | 535 | |
| Asp Cys Pro Ile Asp Gly Cys Leu Ser Asn Pro Cys Phe Ala Gly Val | | | | |
| 545 | | 550 | | 555 |
| Lys Cys Thr Ser Tyr Pro Asp Gly Ser Trp Lys Cys Gly Ala Cys Pro | | | | |
| | 565 | | 570 | |
| Pro Gly Tyr Ser Gly Asn Gly Ile Gln Cys Thr Asp Val Asp Glu Cys | | | | |
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| Lys Glu Val Pro Asp Ala Cys Phe Asn His Asn Gly Glu His Arg Cys | | | | |
| | 595 | | 600 | |
| Glu Asn Thr Asp Pro Gly Tyr Asn Cys Leu Pro Cys Pro Pro Arg Phe | | | | |
| | 610 | | 615 | |
| Thr Gly Ser Gln Pro Phe Gly Gln Gly Val Glu His Ala Thr Ala Asn | | | | |

PH-1064PCT-US seq.TXT

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|---|-----|-----|-----|
| 625 | 630 | 635 | 640 |
| Lys Gln Val Cys Lys Pro Arg Asn Pro Cys Thr Asp Gly Thr His Asp | | | |
| | 645 | 650 | 655 |
| Cys Asn Lys Asn Ala Lys Cys Asn Tyr Leu Gly His Tyr Ser Asp Pro | | | |
| | 660 | 665 | 670 |
| Met Tyr Arg Cys Glu Cys Lys Pro Gly Tyr Ala Gly Asn Gly Ile Ile | | | |
| | 675 | 680 | 685 |
| Cys Gly Glu Asp Thr Asp Leu Asp Gly Trp Pro Asn Glu Asn Leu Val | | | |
| | 690 | 695 | 700 |
| Cys Val Ala Asn Ala Thr Tyr His Cys Lys Lys Asp Asn Cys Pro Asn | | | |
| 705 | 710 | 715 | 720 |
| Leu Pro Asn Ser Gly Gln Glu Asp Tyr Asp Lys Asp Gly Ile Gly Asp | | | |
| | 725 | 730 | 735 |
| Ala Cys Asp Asp Asp Asp Asp Asn Asp Lys Ile Pro Asp Asp Arg Asp | | | |
| | 740 | 745 | 750 |
| Asn Cys Pro Phe His Tyr Asn Pro Ala Gln Tyr Asp Tyr Asp Arg Asp | | | |
| | 755 | 760 | 765 |
| Asp Val Gly Asp Arg Cys Asp Asn Cys Pro Tyr Asn His Asn Pro Asp | | | |
| | 770 | 775 | 780 |
| Gln Ala Asp Thr Asp Asn Asn Gly Glu Gly Asp Ala Cys Ala Ala Asp | | | |
| 785 | 790 | 795 | 800 |
| Ile Asp Gly Asp Gly Ile Leu Asn Glu Arg Asp Asn Cys Gln Tyr Val | | | |
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| 835 | | 840 | | 845 |
| Ser Asp Arg Ile Gly Asp Thr Cys Asp Asn Asn Gln Asp Ile Asp Glu | | | | |
| 850 | | 855 | | 860 |
| Asp Gly His Gln Asn Asn Leu Asp Asn Cys Pro Tyr Val Pro Asn Ala | | | | |
| 865 | | 870 | | 875 |
| Asn Gln Ala Asp His Asp Lys Asp Gly Lys Gly Asp Ala Cys Asp His | | | | |
| | 885 | | 890 | |
| Asp Asp Asp Asn Asp Gly Ile Pro Asp Asp Lys Asp Asn Cys Arg Leu | | | | |
| | 900 | | 905 | |
| Val Pro Asn Pro Asp Gln Lys Asp Ser Asp Gly Asp Gly Arg Gly Asp | | | | |
| | 915 | | 920 | |
| Ala Cys Lys Asp Asp Phe Asp His Asp Ser Val Pro Asp Ile Asp Asp | | | | |
| | 930 | | 935 | |
| Ile Cys Pro Glu Asn Val Asp Ile Ser Glu Thr Asp Phe Arg Arg Phe | | | | |
| 945 | | 950 | | 955 |
| Gln Met Ile Pro Leu Asp Pro Lys Gly Thr Ser Gln Asn Asp Pro Asn | | | | |
| | 965 | | 970 | |
| Trp Val Val Arg His Gln Gly Lys Glu Leu Val Gln Thr Val Asn Cys | | | | |
| | 980 | | 985 | |
| Asp Pro Gly Leu Ala Val Gly Tyr Asp Glu Phe Asn Ala Val Asp Phe | | | | |
| | 995 | | 1000 | |
| Ser Gly Thr Phe Phe Ile Asn Thr Glu Arg Asp Asp Asp Tyr Ala Gly | | | | |

PH-1064PCT-US seq.TXT

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| Phe Val Phe Gly Tyr Gln Ser Ser Ser Arg Phe Tyr Val Val Met Trp | | |
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| Lys Gln Val Thr Gln Ser Tyr Trp Asp Thr Asn Pro Thr Arg Ala Gln | | |
| | 1045 | 1050 |
| | | 1055 |
| Gly Tyr Ser Gly Leu Ser Val Lys Val Val Asn Ser Thr Thr Gly Pro | | |
| | 1060 | 1065 |
| | | 1070 |
| Gly Glu His Leu Arg Asn Ala Leu Trp His Thr Gly Asn Thr Pro Gly | | |
| | 1075 | 1080 |
| | | 1085 |
| Gln Val Arg Thr Leu Trp His Asp Pro Arg His Ile Gly Trp Lys Asp | | |
| | 1090 | 1095 |
| | | 1100 |
| Phe Thr Ala Tyr Arg Trp Arg Leu Ser His Arg Pro Lys Thr Gly Phe | | |
| 1105 | 1110 | 1115 |
| | | 1120 |
| Ile Arg Val Val Met Tyr Glu Gly Lys Lys Ile Met Ala Asp Ser Gly | | |
| | 1125 | 1130 |
| | | 1135 |
| Pro Ile Tyr Asp Lys Thr Tyr Ala Gly Gly Arg Leu Gly Leu Phe Val | | |
| | 1140 | 1145 |
| | | 1150 |
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<212> DNA

PH-1064PCT-US seq.TXT

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Asp Ser Glu Gly His Leu Tyr Thr Val Pro Ile Arg Glu Gln Gly Asn

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15

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atc tac aag ccc aac aac aag gcc atg gca gac gag ctg agc gag aag 151

Ile Tyr Lys Pro Asn Asn Lys Ala Met Ala Asp Glu Leu Ser Glu Lys

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caa gtg tac gac gcg cac acc aag gag atc gac ctg gtc aac cgc gac 199

Gln Val Tyr Asp Ala His Thr Lys Glu Ile Asp Leu Val Asn Arg Asp

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cct aaa cac ctc aac gat gac gtg gtc aag att gac ttt gaa gat gtg 247

Pro Lys His Leu Asn Asp Asp Val Val Lys Ile Asp Phe Glu Asp Val

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70

att gca gaa cca gaa ggg aca cac agt ttt cac ggc att tgg aag gcc 295

Ile Ala Glu Pro Glu Gly Thr His Ser Phe His Gly Ile Trp Lys Ala

75

80

85

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PH-1064PCT-US seq.TXT

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Ser Ala Leu Phe Gly Ile Pro Met Ala Leu Ile Trp Gly Ile Tyr Phe
105 110 115
gcc att ctc tct ttc ctg cac atc tgg gca gtt gta cca tgc att aag 439
Ala Ile Leu Ser Phe Leu His Ile Trp Ala Val Val Pro Cys Ile Lys
120 125 130 135
agc ttc ctg att gag att cag tgc acc agc cgt gtc tat tcc atc tac 487
Ser Phe Leu Ile Glu Ile Gln Cys Thr Ser Arg Val Tyr Ser Ile Tyr
140 145 150
gtc cac acc gtc tgt gac cca ctc ttt gaa gct gtt ggg aaa ata ttc 535
Val His Thr Val Cys Asp Pro Leu Phe Glu Ala Val Gly Lys Ile Phe
155 160 165
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Ser Asn Val Arg Ile Asn Leu Gln Lys Glu Ile
170 175
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<212> PRT

<213> Homo sapiens

<400> 102

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| 1 | | | | 5 | | | | | | 10 | | | | 15 | |
| Pro | Ile | Arg | Glu | Gln | Gly | Asn | Ile | Tyr | Lys | Pro | Asn | Asn | Lys | Ala | Met |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ala | Asp | Glu | Leu | Ser | Glu | Lys | Gln | Val | Tyr | Asp | Ala | His | Thr | Lys | Glu |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ile | Asp | Leu | Val | Asn | Arg | Asp | Pro | Lys | His | Leu | Asn | Asp | Asp | Val | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Ile | Asp | Phe | Glu | Asp | Val | Ile | Ala | Glu | Pro | Glu | Gly | Thr | His | Ser |
| | 65 | | | | 70 | | | | | 75 | | | | 80 | |
| Phe | His | Gly | Ile | Trp | Lys | Ala | Ser | Phe | Thr | Thr | Phe | Thr | Val | Thr | Lys |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Tyr | Trp | Phe | Tyr | Arg | Leu | Leu | Ser | Ala | Leu | Phe | Gly | Ile | Pro | Met | Ala |
| | | 100 | | | | | | 105 | | | | | 110 | | |
| Leu | Ile | Trp | Gly | Ile | Tyr | Phe | Ala | Ile | Leu | Ser | Phe | Leu | His | Ile | Trp |
| | | 115 | | | | | | 120 | | | | 125 | | | |
| Ala | Val | Val | Pro | Cys | Ile | Lys | Ser | Phe | Leu | Ile | Glu | Ile | Gln | Cys | Thr |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Ser | Arg | Val | Tyr | Ser | Ile | Tyr | Val | His | Thr | Val | Cys | Asp | Pro | Leu | Phe |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |

PH-1064PCT-US seq.TXT

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165

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175

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<212> DNA

<213> Homo sapiens

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<222> (1)..(444)

<400> 103

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| 1 5 10 15 | |
| ctg ttc ctc acc atc cct ttc gcc ttc ttc ctg ccc gag ctg ata ttt | 96 |
| Leu Phe Leu Thr Ile Pro Phe Ala Phe Phe Leu Pro Glu Leu Ile Phe | |
| 20 25 30 | |
| ggg ttc ttg gtc tgg acc atg gta gcc gcc acc cac ata gta tac ccc | 144 |
| Gly Phe Leu Val Trp Thr Met Val Ala Ala Thr His Ile Val Tyr Pro | |
| 35 40 45 | |
| ttg ctg caa gga tgg gtg atg tat gtc tcg ctc acc tcg ttt ctc atc | 192 |
| Leu Leu Gln Gly Trp Val Met Tyr Val Ser Leu Thr Ser Phe Leu Ile | |
| 50 55 60 | |
| tcc ttg atg ttc ctg ttg tct tac ttg ttt gga ttt tac aaa aga ttt | 240 |

PH-1064PCT-US seq.TXT

Ser Leu Met Phe Leu Leu Ser Tyr Leu Phe Gly Phe Tyr Lys Arg Phe
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Glu Ser Trp Arg Val Leu Asp Ser Leu Tyr His Gly Thr Thr Gly Ile
85 90 95
ctg tac atg agc gct gcc gtc cta caa gta cat gcc acg att gtt tct 336
Leu Tyr Met Ser Ala Ala Val Leu Gln Val His Ala Thr Ile Val Ser
100 105 110
gag aaa ctg ctg gac cca aga att tac tac att aat tcg gca gcc tcg 384
Glu Lys Leu Leu Asp Pro Arg Ile Tyr Tyr Ile Asn Ser Ala Ala Ser
115 120 125
ttc ttc gcc ttc atc gcc acg ctg ctc tac att ctc cat gcc ttc agc 432
Phe Phe Ala Phe Ile Ala Thr Leu Leu Tyr Ile Leu His Ala Phe Ser
130 135 140
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Ile Tyr Tyr His
145
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PH-1064PCT-US seq.TXT

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<212> PRT

<213> Homo sapiens

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          35              40              45
Leu Leu Gln Gly Trp Val Met Tyr Val Ser Leu Thr Ser Phe Leu Ile
          50              55              60
Ser Leu Met Phe Leu Leu Ser Tyr Leu Phe Gly Phe Tyr Lys Arg Phe
  65              70              75              80
Glu Ser Trp Arg Val Leu Asp Ser Leu Tyr His Gly Thr Thr Gly Ile
          85              90              95
Leu Tyr Met Ser Ala Ala Val Leu Gln Val His Ala Thr Ile Val Ser
          100             105             110
Glu Lys Leu Leu Asp Pro Arg Ile Tyr Tyr Ile Asn Ser Ala Ala Ser
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PH-1064PCT-US seq.TXT

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<211> 2899

<212> DNA

<213> Homo sapiens

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<222> (91)..(2196)

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Met Ala Ala Pro Met Thr Pro Ala

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gct cgg ccc gag gac tac gag gcg gcg ctc aat gcc gcc ctg gct gac 162
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gtg ccc gaa ctg gcc aga ctc ctg gag atc gac ccg tac ttg aag ccc 210
Val Pro Glu Leu Ala Arg Leu Leu Glu Ile Asp Pro Tyr Leu Lys Pro

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35

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tac gcc gtg gac ttc cag cgc agg tat aag cag ttt agc caa att ttg 258
Tyr Ala Val Asp Phe Gln Arg Arg Tyr Lys Gln Phe Ser Gln Ile Leu

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55

aag aac att gga gaa aat gaa ggt ggt att gat aag ttt tcc aga ggc 306
Lys Asn Ile Gly Glu Asn Glu Gly Gly Ile Asp Lys Phe Ser Arg Gly

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| Tyr Glu Ser Phe Gly Val His Arg Cys Ala Asp Gly Gly Leu Tyr Ser | | | |
| 75 | 80 | 85 | |
| aaa gaa tgg gcc ccg gga gca gaa gga gtt ttt ctt act gga gat ttt | 402 | | |
| Lys Glu Trp Ala Pro Gly Ala Glu Gly Val Phe Leu Thr Gly Asp Phe | | | |
| 90 | 95 | 100 | |
| aat ggt tgg aat cca ttt tcg tac cca tac aaa aaa ctg gat tat gga | 450 | | |
| Asn Gly Trp Asn Pro Phe Ser Tyr Pro Tyr Lys Lys Leu Asp Tyr Gly | | | |
| 105 | 110 | 115 | 120 |
| aaa tgg gag ctg tat atc cca cca aag cag aat aaa tct gta ctc gtg | 498 | | |
| Lys Trp Glu Leu Tyr Ile Pro Pro Lys Gln Asn Lys Ser Val Leu Val | | | |
| 125 | 130 | 135 | |
| cct cat gga tcc aaa tta aag gta gtt att act agt aaa agc gga gag | 546 | | |
| Pro His Gly Ser Lys Leu Lys Val Val Ile Thr Ser Lys Ser Gly Glu | | | |
| 140 | 145 | 150 | |
| atc ttg tat cgt att tca ccg tgg gca aag tat gtg gtt cgt gaa ggt | 594 | | |
| Ile Leu Tyr Arg Ile Ser Pro Trp Ala Lys Tyr Val Val Arg Glu Gly | | | |
| 155 | 160 | 165 | |
| gat aat gtg aat tat gat tgg ata cac tgg gat cca gaa cac tca tat | 642 | | |
| Asp Asn Val Asn Tyr Asp Trp Ile His Trp Asp Pro Glu His Ser Tyr | | | |
| 170 | 175 | 180 | |
| gag ttt aag cat tcc aga cca aag aag cca cgg agt cta aga att tat | 690 | | |
| Glu Phe Lys His Ser Arg Pro Lys Lys Pro Arg Ser Leu Arg Ile Tyr | | | |

PH-1064PCT-US seq.TXT

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| gaa tct cat gtg gga att tct tcc cat gaa gga aaa gta gct tct tat | | | | 738 |
| Glu Ser His Val Gly Ile Ser Ser His Glu Gly Lys Val Ala Ser Tyr | | | | |
| | 205 | 210 | 215 | |
| aaa cat ttt aca tgc aat gta cta cca aga atc aaa ggc ctt gga tac | | | | 786 |
| Lys His Phe Thr Cys Asn Val Leu Pro Arg Ile Lys Gly Leu Gly Tyr | | | | |
| | 220 | 225 | 230 | |
| aac tgc att cag ttg atg gca atc atg gag cat gct tac tat gcc agc | | | | 834 |
| Asn Cys Ile Gln Leu Met Ala Ile Met Glu His Ala Tyr Tyr Ala Ser | | | | |
| | 235 | 240 | 245 | |
| ttt ggt tac caa atc aca agc ttc ttt gca gct tcc agc cgt tat gga | | | | 882 |
| Phe Gly Tyr Gln Ile Thr Ser Phe Phe Ala Ala Ser Ser Arg Tyr Gly | | | | |
| | 250 | 255 | 260 | |
| aca cct gaa gag cta caa gaa ctg gta gac aca gct cat tcc atg ggt | | | | 930 |
| Thr Pro Glu Glu Leu Gln Glu Leu Val Asp Thr Ala His Ser Met Gly | | | | |
| | 265 | 270 | 275 | 280 |
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| Ile Ile Val Leu Leu Asp Val Val His Ser His Ala Ser Lys Asn Ser | | | | |
| | 285 | 290 | 295 | |
| gca gat gga ttg aat atg ttt gat ggg aca gat tcc tgt tat ttt cat | | | | 1026 |
| Ala Asp Gly Leu Asn Met Phe Asp Gly Thr Asp Ser Cys Tyr Phe His | | | | |
| | 300 | 305 | 310 | |
| tct gga cct aga ggg act cat gat ctt tgg gat agc aga ttg ttt gcc | | | | 1074 |
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| 330 | 335 | 340 | |
| tgg ttg gaa gaa tat cgc ttt gat gga ttt cgt ttt gat ggt gtt acg | | | 1170 |
| Trp Leu Glu Glu Tyr Arg Phe Asp Gly Phe Arg Phe Asp Gly Val Thr | | | |
| 345 | 350 | 355 | 360 |
| tcc atg ctt tat cat cac cat gga gtg ggt caa ggt ttc tca ggt gat | | | 1218 |
| Ser Met Leu Tyr His His His Gly Val Gly Gln Gly Phe Ser Gly Asp | | | |
| 365 | 370 | 375 | |
| tac agt gaa tat ttc gga cta caa gta gat gaa gat gcc ttg act tac | | | 1266 |
| Tyr Ser Glu Tyr Phe Gly Leu Gln Val Asp Glu Asp Ala Leu Thr Tyr | | | |
| 380 | 385 | 390 | |
| ctc atg ttg gca aat cat ttg gtt cac acg ctg tgt ccc gat tct ata | | | 1314 |
| Leu Met Leu Ala Asn His Leu Val His Thr Leu Cys Pro Asp Ser Ile | | | |
| 395 | 400 | 405 | |
| aca ata gct gag gat gta tca gga atg cca gct ctg tgc tct cca att | | | 1362 |
| Thr Ile Ala Glu Asp Val Ser Gly Met Pro Ala Leu Cys Ser Pro Ile | | | |
| 410 | 415 | 420 | |
| tcc cag gga ggg ggt ggt ttt gac tat cga cta gcc atg gca att cca | | | 1410 |
| Ser Gln Gly Gly Gly Gly Phe Asp Tyr Arg Leu Ala Met Ala Ile Pro | | | |
| 425 | 430 | 435 | 440 |
| gat aag tgg att cag cta ctt aaa gag ttt aaa gat gaa gac tgg aac | | | 1458 |
| Asp Lys Trp Ile Gln Leu Leu Lys Glu Phe Lys Asp Glu Asp Trp Asn | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|-----|-----|
| 445 | 450 | 455 | |
| atg ggc gat ata gta tac acg ctc aca aac agg cgc tac ctt gaa aag | 1506 | | |
| Met Gly Asp Ile Val Tyr Thr Leu Thr Asn Arg Arg Tyr Leu Glu Lys | | | |
| 460 | 465 | 470 | |
| tgc att gct tat gca gag agc cat gat cag gca ttg gtt ggg gat aag | 1554 | | |
| Cys Ile Ala Tyr Ala Glu Ser His Asp Gln Ala Leu Val Gly Asp Lys | | | |
| 475 | 480 | 485 | |
| tcg ctg gca ttt tgg ttg atg gat gcc gaa atg tat aca aac atg agt | 1602 | | |
| Ser Leu Ala Phe Trp Leu Met Asp Ala Glu Met Tyr Thr Asn Met Ser | | | |
| 490 | 495 | 500 | |
| gtc ctg act cct ttt act cca gtt att gat cgt gga ata cag ctt cat | 1650 | | |
| Val Leu Thr Pro Phe Thr Pro Val Ile Asp Arg Gly Ile Gln Leu His | | | |
| 505 | 510 | 515 | 520 |
| aaa atg att cga ctc att acg cat ggg ctt ggt gga gaa ggc tat ctc | 1698 | | |
| Lys Met Ile Arg Leu Ile Thr His Gly Leu Gly Gly Glu Gly Tyr Leu | | | |
| 525 | 530 | 535 | |
| aat ttc atg ggt aat gaa ttt ggg cat cct gaa tgg tta gac ttc cca | 1746 | | |
| Asn Phe Met Gly Asn Glu Phe Gly His Pro Glu Trp Leu Asp Phe Pro | | | |
| 540 | 545 | 550 | |
| aga aaa gga aat aat gag agt tac cat tat gcc agg cgg cag ttt cat | 1794 | | |
| Arg Lys Gly Asn Asn Glu Ser Tyr His Tyr Ala Arg Arg Gln Phe His | | | |
| 555 | 560 | 565 | |
| tta act gac gac gac ctt ctt cgc tac aag ttc cta aat aat ttt gac | 1842 | | |
| Leu Thr Asp Asp Asp Leu Leu Arg Tyr Lys Phe Leu Asn Asn Phe Asp | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|------|-----|-----|
| 570 | 575 | 580 | |
| agg gat atg aat aga ttg gaa gaa aga tat ggt tgg ctt gca gct cca | 1890 | | |
| Arg Asp Met Asn Arg Leu Glu Glu Arg Tyr Gly Trp Leu Ala Ala Pro | | | |
| 585 | 590 | 595 | 600 |
| cag gcc tac gtg agt gaa aaa cat gaa ggc aat aag atc att gct ttt | 1938 | | |
| Gln Ala Tyr Val Ser Glu Lys His Glu Gly Asn Lys Ile Ile Ala Phe | | | |
| | 605 | 610 | 615 |
| gaa aga gca ggt ctt ctt ttc att ttc aac ttc cat cca agc aag agc | 1986 | | |
| Glu Arg Ala Gly Leu Leu Phe Ile Phe Asn Phe His Pro Ser Lys Ser | | | |
| | 620 | 625 | 630 |
| tac act gac tac cga gtt gga aca gca ttg cca ggg aaa ttc aaa att | 2034 | | |
| Tyr Thr Asp Tyr Arg Val Gly Thr Ala Leu Pro Gly Lys Phe Lys Ile | | | |
| | 635 | 640 | 645 |
| gtg cta gat tca gat gca gcg gaa tat gga ggg cat cag aga ctg gac | 2082 | | |
| Val Leu Asp Ser Asp Ala Ala Glu Tyr Gly Gly His Gln Arg Leu Asp | | | |
| | 650 | 655 | 660 |
| cac agc act gac ttt ttt tct gag gct ttt gaa cat aat ggg cgt ccc | 2130 | | |
| His Ser Thr Asp Phe Phe Ser Glu Ala Phe Glu His Asn Gly Arg Pro | | | |
| 665 | 670 | 675 | 680 |
| tat tct ctt ttg gtg tac att cca agc aga gtg gcc ctc atc ctt cag | 2178 | | |
| Tyr Ser Leu Leu Val Tyr Ile Pro Ser Arg Val Ala Leu Ile Leu Gln | | | |
| | 685 | 690 | 695 |
| aat gtg gat ctg ccg aat tgaagaggcc tgatttcagc tccaccagat | 2226 | | |
| Asn Val Asp Leu Pro Asn | | | |

PH-1064PCT-US seq.TXT

700

gcagatttgt gttttgtttt cttgttatca ctgtcacaca gcttataaca tgtatgcttt 2286
tcagaataca gttgtctagc caagccatca agtgtctgaa attcaatatt ggtttatgca 2346
aatacagcaa actttttattht aagtagatag gagaatatgt ttaaaatatt aggaatccta 2406
gaccatattht tcaagtcatc ttagcagcta ggattctcaa atggaagtgt tatatataat 2466
atgttaaaaa cattttgctt tcctggctaa ttatttgatc cttttaaatc caaatttgaa 2526
tcatttgtca tgtatgatta tttctgttaa atgtacacag tatttaagat ggatatttgg 2586
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tgttttattht tgtgatctct tgtccactaa gtatcttgtht aaatgccagt atctcagtct 2826
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<210> 106

<211> 702

<212> PRT

<213> Homo sapiens

<400> 106

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ala | Pro | Met | Thr | Pro | Ala | Ala | Arg | Pro | Glu | Asp | Tyr | Glu | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Ala | Leu | Asn | Ala | Ala | Leu | Ala | Asp | Val | Pro | Glu | Leu | Ala | Arg | Leu | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Glu | Ile | Asp | Pro | Tyr | Leu | Lys | Pro | Tyr | Ala | Val | Asp | Phe | Gln | Arg | Arg |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 35 | 40 | 45 |
| Tyr Lys Gln Phe Ser Gln Ile Leu Lys Asn Ile Gly Glu Asn Glu Gly | | |
| 50 | 55 | 60 |
| Gly Ile Asp Lys Phe Ser Arg Gly Tyr Glu Ser Phe Gly Val His Arg | | |
| 65 | 70 | 75 |
| Cys Ala Asp Gly Gly Leu Tyr Ser Lys Glu Trp Ala Pro Gly Ala Glu | | |
| 85 | 90 | 95 |
| Gly Val Phe Leu Thr Gly Asp Phe Asn Gly Trp Asn Pro Phe Ser Tyr | | |
| 100 | 105 | 110 |
| Pro Tyr Lys Lys Leu Asp Tyr Gly Lys Trp Glu Leu Tyr Ile Pro Pro | | |
| 115 | 120 | 125 |
| Lys Gln Asn Lys Ser Val Leu Val Pro His Gly Ser Lys Leu Lys Val | | |
| 130 | 135 | 140 |
| Val Ile Thr Ser Lys Ser Gly Glu Ile Leu Tyr Arg Ile Ser Pro Trp | | |
| 145 | 150 | 155 |
| Ala Lys Tyr Val Val Arg Glu Gly Asp Asn Val Asn Tyr Asp Trp Ile | | |
| 165 | 170 | 175 |
| His Trp Asp Pro Glu His Ser Tyr Glu Phe Lys His Ser Arg Pro Lys | | |
| 180 | 185 | 190 |
| Lys Pro Arg Ser Leu Arg Ile Tyr Glu Ser His Val Gly Ile Ser Ser | | |
| 195 | 200 | 205 |
| His Glu Gly Lys Val Ala Ser Tyr Lys His Phe Thr Cys Asn Val Leu | | |
| 210 | 215 | 220 |
| Pro Arg Ile Lys Gly Leu Gly Tyr Asn Cys Ile Gln Leu Met Ala Ile | | |

PH-1064PCT-US seq.TXT

```

225          230          235          240
Met Glu His Ala Tyr Tyr Ala Ser Phe Gly Tyr Gln Ile Thr Ser Phe

          245          250          255
Phe Ala Ala Ser Ser Arg Tyr Gly Thr Pro Glu Glu Leu Gln Glu Leu

          260          265          270
Val Asp Thr Ala His Ser Met Gly Ile Ile Val Leu Leu Asp Val Val

          275          280          285
His Ser His Ala Ser Lys Asn Ser Ala Asp Gly Leu Asn Met Phe Asp

          290          295          300
Gly Thr Asp Ser Cys Tyr Phe His Ser Gly Pro Arg Gly Thr His Asp

305          310          315          320
Leu Trp Asp Ser Arg Leu Phe Ala Tyr Ser Ser Trp Glu Val Leu Arg

          325          330          335
Phe Leu Leu Ser Asn Ile Arg Trp Trp Leu Glu Glu Tyr Arg Phe Asp

          340          345          350
Gly Phe Arg Phe Asp Gly Val Thr Ser Met Leu Tyr His His His Gly

          355          360          365
Val Gly Gln Gly Phe Ser Gly Asp Tyr Ser Glu Tyr Phe Gly Leu Gln

          370          375          380
Val Asp Glu Asp Ala Leu Thr Tyr Leu Met Leu Ala Asn His Leu Val

385          390          395          400
His Thr Leu Cys Pro Asp Ser Ile Thr Ile Ala Glu Asp Val Ser Gly

          405          410          415
Met Pro Ala Leu Cys Ser Pro Ile Ser Gln Gly Gly Gly Gly Phe Asp

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PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 420 | 425 | 430 |
| Tyr Arg Leu Ala Met Ala Ile Pro Asp Lys Trp Ile Gln Leu Leu Lys | | |
| 435 | 440 | 445 |
| Glu Phe Lys Asp Glu Asp Trp Asn Met Gly Asp Ile Val Tyr Thr Leu | | |
| 450 | 455 | 460 |
| Thr Asn Arg Arg Tyr Leu Glu Lys Cys Ile Ala Tyr Ala Glu Ser His | | |
| 465 | 470 | 475 |
| Asp Gln Ala Leu Val Gly Asp Lys Ser Leu Ala Phe Trp Leu Met Asp | | |
| 485 | 490 | 495 |
| Ala Glu Met Tyr Thr Asn Met Ser Val Leu Thr Pro Phe Thr Pro Val | | |
| 500 | 505 | 510 |
| Ile Asp Arg Gly Ile Gln Leu His Lys Met Ile Arg Leu Ile Thr His | | |
| 515 | 520 | 525 |
| Gly Leu Gly Gly Glu Gly Tyr Leu Asn Phe Met Gly Asn Glu Phe Gly | | |
| 530 | 535 | 540 |
| His Pro Glu Trp Leu Asp Phe Pro Arg Lys Gly Asn Asn Glu Ser Tyr | | |
| 545 | 550 | 555 |
| His Tyr Ala Arg Arg Gln Phe His Leu Thr Asp Asp Asp Leu Leu Arg | | |
| 565 | 570 | 575 |
| Tyr Lys Phe Leu Asn Asn Phe Asp Arg Asp Met Asn Arg Leu Glu Glu | | |
| 580 | 585 | 590 |
| Arg Tyr Gly Trp Leu Ala Ala Pro Gln Ala Tyr Val Ser Glu Lys His | | |
| 595 | 600 | 605 |
| Glu Gly Asn Lys Ile Ile Ala Phe Glu Arg Ala Gly Leu Leu Phe Ile | | |

PH-1064PCT-US seq.TXT

610

615

620

Phe Asn Phe His Pro Ser Lys Ser Tyr Thr Asp Tyr Arg Val Gly Thr

625

630

635

640

Ala Leu Pro Gly Lys Phe Lys Ile Val Leu Asp Ser Asp Ala Ala Glu

645

650

655

Tyr Gly Gly His Gln Arg Leu Asp His Ser Thr Asp Phe Phe Ser Glu

660

665

670

Ala Phe Glu His Asn Gly Arg Pro Tyr Ser Leu Leu Val Tyr Ile Pro

675

680

685

Ser Arg Val Ala Leu Ile Leu Gln Asn Val Asp Leu Pro Asn

690

695

700

<210> 107

<211> 790

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (78)..(626)

<400> 107

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tctccttagt cgccgcc atg acg acc gcg tcc acc tcg cag gtg cgc cag 110

Met Thr Thr Ala Ser Thr Ser Gln Val Arg Gln

1

5

10

aac tac cac cag gac tca gag gcc gcc atc aac cgc cag atc aac ctg 158

PH-1064PCT-US seq.TXT

| | |
|---|-----|
| Asn Tyr His Gln Asp Ser Glu Ala Ala Ile Asn Arg Gln Ile Asn Leu | |
| 15 20 25 | |
| gag ctc tac gcc tcc tac gtt tac ctg tcc atg tct tac tac ttt gac | 206 |
| Glu Leu Tyr Ala Ser Tyr Val Tyr Leu Ser Met Ser Tyr Tyr Phe Asp | |
| 30 35 40 | |
| cgc gat gat gtg gct ttg aag aac ttt gcc aaa tac ttt ctt cac caa | 254 |
| Arg Asp Asp Val Ala Leu Lys Asn Phe Ala Lys Tyr Phe Leu His Gln | |
| 45 50 55 | |
| tct cat gag gag agg gaa cat gct gag aaa ctg atg aag ctg cag aac | 302 |
| Ser His Glu Glu Arg Glu His Ala Glu Lys Leu Met Lys Leu Gln Asn | |
| 60 65 70 75 | |
| caa cga ggt ggc cga atc ttc ctt cag gat atc aag aaa cca gac tgt | 350 |
| Gln Arg Gly Gly Arg Ile Phe Leu Gln Asp Ile Lys Lys Pro Asp Cys | |
| 80 85 90 | |
| gat gac tgg gag agc ggg ctg aat gca atg gag tgt gca tta cat ttg | 398 |
| Asp Asp Trp Glu Ser Gly Leu Asn Ala Met Glu Cys Ala Leu His Leu | |
| 95 100 105 | |
| gaa aaa aat gtg aat cag tca cta ctg gaa ctg cac aaa ctg gcc act | 446 |
| Glu Lys Asn Val Asn Gln Ser Leu Leu Glu Leu His Lys Leu Ala Thr | |
| 110 115 120 | |
| gac aaa aat gac ccc cat ttg tgt gac ttc att gag aca cat tac ctg | 494 |
| Asp Lys Asn Asp Pro His Leu Cys Asp Phe Ile Glu Thr His Tyr Leu | |
| 125 130 135 | |
| aat gag cag gtg aaa gcc atc aaa gaa ttg ggt gac cac gtg acc aac | 542 |

PH-1064PCT-US seq.TXT

Asn Glu Gln Val Lys Ala Ile Lys Glu Leu Gly Asp His Val Thr Asn
140 145 150 155
ttg cgc aag atg gga gcg ccc gaa tct ggc ttg gcg gaa tat ctc ttt 590
Leu Arg Lys Met Gly Ala Pro Glu Ser Gly Leu Ala Glu Tyr Leu Phe
160 165 170
gac aag cac acc ctg gga gac agt gat aat gaa agc taagcctcgg 636
Asp Lys His Thr Leu Gly Asp Ser Asp Asn Glu Ser
175 180
gctaatttcc ccatagccgt ggggtgactt ccctggtcac caaggcagtg catgcatgtt 696
ggggtttcct ttaccttttc tataagttgt accaaaacat ccacttaagt tctttgattt 756
gtaccattcc ttcaaataaa gaaatttggt accc 790

<210> 108

<211> 183

<212> PRT

<213> Homo sapiens

<400> 108

Met Thr Thr Ala Ser Thr Ser Gln Val Arg Gln Asn Tyr His Gln Asp
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Ser Glu Ala Ala Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser
20 25 30
Tyr Val Tyr Leu Ser Met Ser Tyr Tyr Phe Asp Arg Asp Asp Val Ala
35 40 45
Leu Lys Asn Phe Ala Lys Tyr Phe Leu His Gln Ser His Glu Glu Arg

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 50 | 55 | 60 |
| Glu His Ala Glu Lys Leu Met Lys Leu Gln Asn Gln Arg Gly Gly Arg | | |
| 65 | 70 | 75 |
| Ile Phe Leu Gln Asp Ile Lys Lys Pro Asp Cys Asp Asp Trp Glu Ser | | |
| | 85 | 90 |
| | | 95 |
| Gly Leu Asn Ala Met Glu Cys Ala Leu His Leu Glu Lys Asn Val Asn | | |
| 100 | 105 | 110 |
| Gln Ser Leu Leu Glu Leu His Lys Leu Ala Thr Asp Lys Asn Asp Pro | | |
| 115 | 120 | 125 |
| His Leu Cys Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln Val Lys | | |
| 130 | 135 | 140 |
| Ala Ile Lys Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly | | |
| 145 | 150 | 155 |
| | | 160 |
| Ala Pro Glu Ser Gly Leu Ala Glu Tyr Leu Phe Asp Lys His Thr Leu | | |
| | 165 | 170 |
| | | 175 |
| Gly Asp Ser Asp Asn Glu Ser | | |
| 180 | | |

<210> 109

<211> 3460

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (256)..(1857)

PH-1064PCT-US seq.TXT

<400> 109

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 gggctgggct gtgcgcctgc gcagtgtggg tcgctcccga ttccctgccc cggccggccc 180
 cgctcgggct ccgcaccctc gcccgcgtct cagccgcgcg tctgccccgc agcagccagc 240
 cccgtgtccg gcagt atg ttc agc tgg gtc agc aag gat gcc cgc cgc aag 291

Met Phe Ser Trp Val Ser Lys Asp Ala Arg Arg Lys

1 5 10

aag gag ccg gag ctc ttc cag acg gtg gcc gag ggg ctg cgg cag ctg 339
 Lys Glu Pro Glu Leu Phe Gln Thr Val Ala Glu Gly Leu Arg Gln Leu

15 20 25

tac gcg cag aag ctg cta ccc ctg gag gag cac tac cgc ttc cac gag 387
 Tyr Ala Gln Lys Leu Leu Pro Leu Glu Glu His Tyr Arg Phe His Glu

30 35 40

ttc cac tcg ccc gcr ctg gag gac gct gac ttc gac aac aag cct atg 435
 Phe His Ser Pro Xaa Leu Glu Asp Ala Asp Phe Asp Asn Lys Pro Met

45 50 55 60

gtg ctc ctc gtg rgg cag tac agc acg ggc aag acc acc ttc atc cga 483
 Val Leu Leu Val Xaa Gln Tyr Ser Thr Gly Lys Thr Thr Phe Ile Arg

65 70 75

cac ctg atc gag cag gac ttc ccg ggg atg cgc atc ggg ccc gag ccc 531
 His Leu Ile Glu Gln Asp Phe Pro Gly Met Arg Ile Gly Pro Glu Pro

80 85 90

acc acc gac tcc ttc atc gcc gtc atg cac ggc ccc act gag ggc gtg 579

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Thr | Thr | Asp | Ser | Phe | Ile | Ala | Val | Met | His | Gly | Pro | Thr | Glu | Gly | Val | | |
| | | 95 | | | | | 100 | | | | | 105 | | | | | |
| gtg | ccg | ggc | aac | gcg | ctc | gtg | gtg | gac | ccg | cgg | cgc | ccc | ttc | cgc | aag | 627 | |
| Val | Pro | Gly | Asn | Ala | Leu | Val | Val | Asp | Pro | Arg | Arg | Pro | Phe | Arg | Lys | | |
| | | 110 | | | | | 115 | | | | | 120 | | | | | |
| ctc | aac | gcg | ttt | ggc | aac | gct | ttc | ctc | aac | agg | ttc | atg | tgt | gcc | cag | 675 | |
| Leu | Asn | Ala | Phe | Gly | Asn | Ala | Phe | Leu | Asn | Arg | Phe | Met | Cys | Ala | Gln | | |
| 125 | | | | | | 130 | | | | | 135 | | | | 140 | | |
| ctg | ccc | aac | ccc | gtc | ctg | gac | agc | atc | agc | atc | atc | gac | acc | ccc | ggg | 723 | |
| Leu | Pro | Asn | Pro | Val | Leu | Asp | Ser | Ile | Ser | Ile | Ile | Asp | Thr | Pro | Gly | | |
| | | | | 145 | | | | | 150 | | | | | 155 | | | |
| atc | ctg | tct | gga | gag | aag | cag | cgg | atc | agc | aga | ggc | tat | gac | ttt | gca | 771 | |
| Ile | Leu | Ser | Gly | Glu | Lys | Gln | Arg | Ile | Ser | Arg | Gly | Tyr | Asp | Phe | Ala | | |
| | | 160 | | | | | | 165 | | | | | 170 | | | | |
| gcc | gtc | ctg | gag | tgg | ttc | gcg | gag | cgt | gtg | gac | cgc | atc | atc | ctg | ctc | 819 | |
| Ala | Val | Leu | Glu | Trp | Phe | Ala | Glu | Arg | Val | Asp | Arg | Ile | Ile | Leu | Leu | | |
| | | 175 | | | | | | 180 | | | | | 185 | | | | |
| ttc | gac | gcc | cac | aag | ctg | gac | atc | tcc | gat | gag | ttc | tcg | gaa | gtg | atc | 867 | |
| Phe | Asp | Ala | His | Lys | Leu | Asp | Ile | Ser | Asp | Glu | Phe | Ser | Glu | Val | Ile | | |
| | | 190 | | | | | 195 | | | | | 200 | | | | | |
| aag | gct | ctg | aag | aac | cat | gag | gac | aag | atc | cgc | gtg | gtg | ctg | aac | aag | 915 | |
| Lys | Ala | Leu | Lys | Asn | His | Glu | Asp | Lys | Ile | Arg | Val | Val | Leu | Asn | Lys | | |
| 205 | | | | | | 210 | | | | 215 | | | | 220 | | | |
| gca | gac | cag | atc | gag | acg | cag | cag | ctg | atg | cgg | gtg | tac | ggg | gcc | ctc | 963 | |

PH-1064PCT-US seq.TXT

| | |
|---|------|
| Ala Asp Gln Ile Glu Thr Gln Gln Leu Met Arg Val Tyr Gly Ala Leu | |
| 225 | 230 |
| 235 | |
| atg tgg tcc ctg ggc aag atc atc aac acc ccc gag gtg gtc agg gtc | 1011 |
| Met Trp Ser Leu Gly Lys Ile Ile Asn Thr Pro Glu Val Val Arg Val | |
| 240 | 245 |
| 250 | |
| tac atc ggc tcc ttc tgg tcc cac ccg ctc ctc atc ccc gac aac cgc | 1059 |
| Tyr Ile Gly Ser Phe Trp Ser His Pro Leu Leu Ile Pro Asp Asn Arg | |
| 255 | 260 |
| 265 | |
| aag ctc ttt gag gcc gag gag cag gac ctc ttc aag gac atc cag tca | 1107 |
| Lys Leu Phe Glu Ala Glu Glu Gln Asp Leu Phe Lys Asp Ile Gln Ser | |
| 270 | 275 |
| 280 | |
| ctg ccc cga aac gcc gcc ctc agg aag ctc aat gac ctg atc aag cgg | 1155 |
| Leu Pro Arg Asn Ala Ala Leu Arg Lys Leu Asn Asp Leu Ile Lys Arg | |
| 285 | 290 |
| 295 | 300 |
| gca cgg ctg gcc aag gtt cac gcc tac atc atc agc tcc ctc aag aaa | 1203 |
| Ala Arg Leu Ala Lys Val His Ala Tyr Ile Ile Ser Ser Leu Lys Lys | |
| 305 | 310 |
| 315 | |
| gag atg ccc aat gtc ttt ggt aaa gag agc aaa aag aaa gag ctg gtg | 1251 |
| Glu Met Pro Asn Val Phe Gly Lys Glu Ser Lys Lys Lys Glu Leu Val | |
| 320 | 325 |
| 330 | |
| aac aac ctg gga gag atc tac cag aag att gag cgc gag cac cag atc | 1299 |
| Asn Asn Leu Gly Glu Ile Tyr Gln Lys Ile Glu Arg Glu His Gln Ile | |
| 335 | 340 |
| 345 | |
| tcc cct ggg gac ttc ccg agc ctc cgc aag atg cag gaa ctc ctg cag | 1347 |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Ser | Pro | Gly | Asp | Phe | Pro | Ser | Leu | Arg | Lys | Met | Gln | Glu | Leu | Leu | Gln | | |
| | 350 | | | | | 355 | | | | 360 | | | | | | | |
| acc | cag | gac | ttc | agc | aag | ttc | cag | gcg | ctg | aag | ccc | aag | ctg | ctg | gac | 1395 | |
| Thr | Gln | Asp | Phe | Ser | Lys | Phe | Gln | Ala | Leu | Lys | Pro | Lys | Leu | Leu | Asp | | |
| 365 | | | | | 370 | | | | | 375 | | | | | 380 | | |
| acg | gtg | gat | gac | atg | ctg | gcc | aac | gac | atc | gcg | cgg | ctg | atg | gtg | atg | 1443 | |
| Thr | Val | Asp | Asp | Met | Leu | Ala | Asn | Asp | Ile | Ala | Arg | Leu | Met | Val | Met | | |
| | | | | 385 | | | | | 390 | | | | | 395 | | | |
| gtg | cgg | cag | gag | gag | tcc | ctg | atg | cct | tcc | cag | gtg | gtc | aag | ggc | ggc | 1491 | |
| Val | Arg | Gln | Glu | Glu | Ser | Leu | Met | Pro | Ser | Gln | Val | Val | Lys | Gly | Gly | | |
| | | | 400 | | | | | 405 | | | | | 410 | | | | |
| gcc | ttt | gac | ggc | acc | atg | aac | ggg | ccg | ttc | ggg | cac | ggc | tac | ggc | gag | 1539 | |
| Ala | Phe | Asp | Gly | Thr | Met | Asn | Gly | Pro | Phe | Gly | His | Gly | Tyr | Gly | Glu | | |
| | | 415 | | | | | 420 | | | | | 425 | | | | | |
| ggg | gcc | ggc | gag | ggc | atc | cac | gac | gtg | gag | tgg | gtg | gtg | ggc | aag | gac | 1587 | |
| Gly | Ala | Gly | Glu | Gly | Ile | His | Asp | Val | Glu | Trp | Val | Val | Gly | Lys | Asp | | |
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| aag | ccc | acc | tac | gac | gag | atc | ttc | tac | acg | ctg | tcc | cct | gtc | aac | ggc | 1635 | |
| Lys | Pro | Thr | Tyr | Asp | Glu | Ile | Phe | Tyr | Thr | Leu | Ser | Pro | Val | Asn | Gly | | |
| 445 | | | | | 450 | | | | | 455 | | | | 460 | | | |
| aag | atc | acg | ggc | gcc | aac | gcc | aag | aag | gag | atg | gtg | aag | tcc | aag | ctc | 1683 | |
| Lys | Ile | Thr | Gly | Ala | Asn | Ala | Lys | Lys | Glu | Met | Val | Lys | Ser | Lys | Leu | | |
| | | | 465 | | | | | | 470 | | | | 475 | | | | |
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495 500 505
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Lys Val Lys Leu Glu Gly His Glu Leu Pro Ala Asp Leu Pro Pro His
510 515 520
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Leu Val Pro Pro Ser Lys Arg Arg His Glu
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| Leu | Leu | Pro | Leu | Glu | Glu | His | Tyr | Arg | Phe | His | Glu | Phe | His | Ser | Pro |
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| Phe | Ile | Ala | Val | Met | His | Gly | Pro | Thr | Glu | Gly | Val | Val | Pro | Gly | Asn |
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| Trp | Phe | Ala | Glu | Arg | Val | Asp | Arg | Ile | Ile | Leu | Leu | Phe | Asp | Ala | His |
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| Lys | Leu | Asp | Ile | Ser | Asp | Glu | Phe | Ser | Glu | Val | Ile | Lys | Ala | Leu | Lys |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Asn | His | Glu | Asp | Lys | Ile | Arg | Val | Val | Leu | Asn | Lys | Ala | Asp | Gln | Ile |
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| | | | | 245 | | | | | 250 | | | | | 255 | |
| Phe | Trp | Ser | His | Pro | Leu | Leu | Ile | Pro | Asp | Asn | Arg | Lys | Leu | Phe | Glu |
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| | | 290 | | | | 295 | | | | | | 300 | | | |
| Lys | Val | His | Ala | Tyr | Ile | Ile | Ser | Ser | Leu | Lys | Lys | Glu | Met | Pro | Asn |
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| Val | Phe | Gly | Lys | Glu | Ser | Lys | Lys | Lys | Glu | Leu | Val | Asn | Asn | Leu | Gly |
| | | | | 325 | | | | | 330 | | | | | 335 | |
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385 390 395 400

Glu Ser Leu Met Pro Ser Gln Val Val Lys Gly Gly Ala Phe Asp Gly
405 410 415

Thr Met Asn Gly Pro Phe Gly His Gly Tyr Gly Glu Gly Ala Gly Glu
420 425 430

Gly Ile His Asp Val Glu Trp Val Val Gly Lys Asp Lys Pro Thr Tyr
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Asp Glu Ile Phe Tyr Thr Leu Ser Pro Val Asn Gly Lys Ile Thr Gly
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Ala Asn Ala Lys Lys Glu Met Val Lys Ser Lys Leu Pro Asn Thr Val
465 470 475 480

Leu Gly Lys Ile Trp Lys Leu Ala Asp Val Asp Lys Asp Gly Leu Leu
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Asp Asp Glu Glu Phe Ala Leu Ala Asn His Leu Ile Lys Val Lys Leu
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Asp Gly Phe Arg Lys Leu Leu Asp His Leu Gln Leu Asp Lys Val His
      90                      95                      100

ctt ttt ggc gct tct ttg gga ggc ttt ttg gcc cag aaa ttt gct gaa      448
Leu Phe Gly Ala Ser Leu Gly Gly Phe Leu Ala Gln Lys Phe Ala Glu
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Tyr Thr His Lys Ser Pro Arg Val His Ser Leu Ile Leu Cys Asn Ser
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      140                      145                      150

tgg ctg atg cct gca ttt atg ctc aaa aaa ata gtt ctt gga aat ttt      592
Trp Leu Met Pro Ala Phe Met Leu Lys Lys Ile Val Leu Gly Asn Phe
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Ser Ser Gly Pro Val Asp Pro Met Met Ala Asp Ala Ile Asp Phe Met
      170                      175                      180

gta gac agg cta gaa agt ttg ggt cag agt gaa ctg gct tca aga ctt      688
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| Val | Pro | Leu | Lys | Lys | Ile | Ile | Val | Asp | Asp | Asp | Asp | Ser | Lys | Ile | Trp |
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| Ser | Leu | Tyr | Asp | Ala | Gly | Pro | Arg | Ser | Ile | Arg | Cys | Pro | Leu | Ile | Phe |
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| Leu | Pro | Pro | Val | Ser | Gly | Thr | Ala | Asp | Val | Phe | Phe | Arg | Gln | Ile | Leu |
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| Tyr | Trp | Asp | His | Leu | Glu | Phe | Cys | Asp | Gly | Phe | Arg | Lys | Leu | Leu | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| His | Leu | Gln | Leu | Asp | Lys | Val | His | Leu | Phe | Gly | Ala | Ser | Leu | Gly | Gly |
| | | | | 100 | | | | | 105 | | | | | 110 | |
| Phe | Leu | Ala | Gln | Lys | Phe | Ala | Glu | Tyr | Thr | His | Lys | Ser | Pro | Arg | Val |
| | | | | 115 | | | | | 120 | | | | | 125 | |
| His | Ser | Leu | Ile | Leu | Cys | Asn | Ser | Phe | Ser | Asp | Thr | Ser | Ile | Phe | Asn |
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| Gln | Thr | Trp | Thr | Ala | Asn | Ser | Phe | Trp | Leu | Met | Pro | Ala | Phe | Met | Leu |
| | | | | 145 | | | | | 150 | | | | | 155 | |
| Lys | Lys | Ile | Val | Leu | Gly | Asn | Phe | Ser | Ser | Gly | Pro | Val | Asp | Pro | Met |
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| Met | Ala | Asp | Ala | Ile | Asp | Phe | Met | Val | Asp | Arg | Leu | Glu | Ser | Leu | Gly |
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| Ala Ala Phe Gly Gly Leu Cys Ile Gly Ala Leu Ser Val Leu Ala Asp | | | |
| 65 | 70 | 75 | 80 |
| ttc cta ggc gcc att ggg tct gga acc ggg atc ctg ctc gca gtc aca | 288 | | |
| Phe Leu Gly Ala Ile Gly Ser Gly Thr Gly Ile Leu Leu Ala Val Thr | | | |
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<400> 114

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| Asp | Pro | Phe | His | Ala | Val | Val | Tyr | Ile | Val | Phe | Met | Leu | Gly | Ser | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Xaa | Xaa | Xaa | Ser | Lys | Thr | Trp | Ile | Glu | Val | Ser | Gly | Ser | Ser | Xaa | Lys |
| | | | | 20 | | | | 25 | | | | | 30 | | |
| Asp | Xaa | Xaa | Lys | Gln | Leu | Lys | Glu | Gln | Gln | Met | Val | Met | Arg | Gly | His |
| | | | 35 | | | | | 40 | | | | | 45 | | |
| Arg | Glu | Thr | Ser | Met | Val | His | Glu | Leu | Asn | Arg | Tyr | Ile | Pro | Thr | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Ala | Phe | Gly | Gly | Leu | Cys | Ile | Gly | Ala | Leu | Ser | Val | Leu | Ala | Asp |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Phe | Leu | Gly | Ala | Ile | Gly | Ser | Gly | Thr | Gly | Ile | Leu | Leu | Ala | Val | Thr |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ile | Ile | Tyr | Gln | Tyr | Phe | Glu | Ile | Phe | Val | Lys | Glu | Xaa | Ser | Glu | Val |
| | | | 100 | | | | | 105 | | | | | | 110 | |
| Gly | Ser | Met | Gly | Ala | Leu | Leu | Phe | | | | | | | | |
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<223> a, c, g or t

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cacagttcca gganngggtg ggtagcagtg tgtgtgttat gtgccactga ccctgaaara 1
80

tgtgccatag cccaagccaa ttgaaattga tcagggggcc aggcattgtg gctcatgcct 2
40

gtaatcccag caccttggga agctgaggtg ggaggattgc ttgaaaccag gagttcaaga 3
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gggc 3
64

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Ser Trp Ala Asn Leu Ser Arg Thr Cys Phe Pro Glu Ala Arg Cys Ser

10

15

20

25

gtg acc cag cgc atc tta acc ttg ggt ctc cta ggc tcg agg cta ggg 148

Val Thr Gln Arg Ile Leu Thr Leu Gly Leu Leu Gly Ser Arg Leu Gly

30

35

40

cat tac gtt tcg tgg aac caa agc agc caa ttg cat agc aag tat ttt 196

His Tyr Val Ser Trp Asn Gln Ser Ser Gln Leu His Ser Lys Tyr Phe

45

50

55

cct gca ttc caa tta aat gct taagaaaaag cagcatccta taaaattgtg 247

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Pro Ala Phe Gln Leu Asn Ala

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tgaatacatc acattcctat gcaaagtgtt ttaatctcca gtttaatgta gtttattttt 787
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15

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25

30

Leu Gly Leu Leu Gly Ser Arg Leu Gly His Tyr Val Ser Trp Asn Gln

35

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gctagagaca gggagagcag agtaaaaccc tcaggctgct gaaatttcta ggctgttagg 180
aagcccctcg aattctgtga aaatgagggt ttcttaactc aactgagag cggaaggagg 240
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 aagcaatagc agcaggagtc cccagcagct ggagccgcaa gaatgaactg caaagaggga 480
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Met Leu Lys Cys

1

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 Val Val Val Gly Asp Gly Ala Val Gly Lys Thr Cys Leu Leu Met Ser
 5 10 15 20

tac gcc aac gac gcc ttc cca gag gaa tac gtg ccc act gtg ttt gac 631
 Tyr Ala Asn Asp Ala Phe Pro Glu Glu Tyr Val Pro Thr Val Phe Asp
 25 30 35

cac tat gca gtt act gtg act gtg gga ggc aag caa cac ttg ctc gga 679
 His Tyr Ala Val Thr Val Thr Val Gly Gly Lys Gln His Leu Leu Gly
 40 45 50

ctg tat gac acc gcg gga cag gag gac tac aac cag ctg agg cca ctc 727
 Leu Tyr Asp Thr Ala Gly Gln Glu Asp Tyr Asn Gln Leu Arg Pro Leu
 55 60 65

tcc tac ccc aac acg gat gtg ttt ttg atc tgc ttc tct gtc gta aac 775
 Ser Tyr Pro Asn Thr Asp Val Phe Leu Ile Cys Phe Ser Val Val Asn
 70 75 80

cct gcc tct tac cac aat gtc cag gag gaa tgg gtc ccc gag ctc aag 823
 Pro Ala Ser Tyr His Asn Val Gln Glu Glu Trp Val Pro Glu Leu Lys
 85 90 95 100

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| | |
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| Asp Cys Met Pro His Val Pro Tyr Val Leu Ile Gly Thr Gln Ile Asp | |
| 105 110 115 | |
| ctc cgt gat gac cca aaa acc ttg gcc cgt ttg ctg tat atg aaa gag | 919 |
| Leu Arg Asp Asp Pro Lys Thr Leu Ala Arg Leu Leu Tyr Met Lys Glu | |
| 120 125 130 | |
| aaa cct ctc act tac gag cat ggt gtg aag ctc gca aaa gcg atc gga | 967 |
| Lys Pro Leu Thr Tyr Glu His Gly Val Lys Leu Ala Lys Ala Ile Gly | |
| 135 140 145 | |
| gca cag tgc tac ttg gaa tgt tca gct ctg act cag aaa ggt ctc aaa | 1015 |
| Ala Gln Cys Tyr Leu Glu Cys Ser Ala Leu Thr Gln Lys Gly Leu Lys | |
| 150 155 160 | |
| gcg gtt ttt gat gaa gca atc ctc acc att ttc cac ccc aag aaa aag | 1063 |
| Ala Val Phe Asp Glu Ala Ile Leu Thr Ile Phe His Pro Lys Lys Lys | |
| 165 170 175 180 | |
| aag aaa cgc tgt tct gag ggt cac agc tgc tgt tca att atc | 1105 |
| Lys Lys Arg Cys Ser Glu Gly His Ser Cys Cys Ser Ile Ile | |
| 185 190 | |
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<211> 194

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| Met | Leu | Lys | Cys | Val | Val | Val | Gly | Asp | Gly | Ala | Val | Gly | Lys | Thr | Cys |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Leu | Met | Ser | Tyr | Ala | Asn | Asp | Ala | Phe | Pro | Glu | Glu | Tyr | Val | Pro |
| | | | | 20 | | | | 25 | | | | | 30 | | |
| Thr | Val | Phe | Asp | His | Tyr | Ala | Val | Thr | Val | Thr | Val | Gly | Gly | Lys | Gln |
| | | | | 35 | | | | 40 | | | | | 45 | | |
| His | Leu | Leu | Gly | Leu | Tyr | Asp | Thr | Ala | Gly | Gln | Glu | Asp | Tyr | Asn | Gln |
| | | | | 50 | | | | 55 | | | | | 60 | | |
| Leu | Arg | Pro | Leu | Ser | Tyr | Pro | Asn | Thr | Asp | Val | Phe | Leu | Ile | Cys | Phe |
| | | | | | | | | | | | | | | | |
| 65 | | | | | 70 | | | | | 75 | | | | 80 | |
| Ser | Val | Val | Asn | Pro | Ala | Ser | Tyr | His | Asn | Val | Gln | Glu | Glu | Trp | Val |
| | | | | | | | | | | | | | | | |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Pro | Glu | Leu | Lys | Asp | Cys | Met | Pro | His | Val | Pro | Tyr | Val | Leu | Ile | Gly |
| | | | | | | | | | | | | | | | |
| | | | | 100 | | | | | 105 | | | | | 110 | |
| Thr | Gln | Ile | Asp | Leu | Arg | Asp | Asp | Pro | Lys | Thr | Leu | Ala | Arg | Leu | Leu |
| | | | | | | | | | | | | | | | |
| | | | | 115 | | | | | 120 | | | | | 125 | |
| Tyr | Met | Lys | Glu | Lys | Pro | Leu | Thr | Tyr | Glu | His | Gly | Val | Lys | Leu | Ala |
| | | | | | | | | | | | | | | | |
| | | | | 130 | | | | | 135 | | | | | 140 | |
| Lys | Ala | Ile | Gly | Ala | Gln | Cys | Tyr | Leu | Glu | Cys | Ser | Ala | Leu | Thr | Gln |
| | | | | | | | | | | | | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | 160 | |
| Lys | Gly | Leu | Lys | Ala | Val | Phe | Asp | Glu | Ala | Ile | Leu | Thr | Ile | Phe | His |
| | | | | | | | | | | | | | | | |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Lys | Lys | Lys | Lys | Lys | Arg | Cys | Ser | Glu | Gly | His | Ser | Cys | Cys | Ser |
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15

acc gtg tat gcc ctg gcg gtc atc tcg acg cca gac cag acc aaa gtc 97

Thr Val Tyr Ala Leu Ala Val Ile Ser Thr Pro Asp Gln Thr Lys Val

20

25

30

ttc agt gca tcc tac gac cgg tcc ctc agg gtc tgg agt atg gac aac 145

Phe Ser Ala Ser Tyr Asp Arg Ser Leu Arg Val Trp Ser Met Asp Asn

35

40

45

atg atc tgc acg cag acc ctg ctg cgt cac cag ggc agt gtc acc gcg 193

Met Ile Cys Thr Gln Thr Leu Leu Arg His Gln Gly Ser Val Thr Ala

50

55

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ctg gct gtg tcc cgg ggc cga ctc ttc tca ggg gct gtg gat agc act 241

Leu Ala Val Ser Arg Gly Arg Leu Phe Ser Gly Ala Val Asp Ser Thr

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70

75

80

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289

Val Lys Val Trp Thr Cys

85

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<223> unknown

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Thr | Val | Tyr | Ala | Leu | Ala | Val | Ile | Ser | Thr | Pro | Asp | Gln | Thr | Lys | Val |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Phe | Ser | Ala | Ser | Tyr | Asp | Arg | Ser | Leu | Arg | Val | Trp | Ser | Met | Asp | Asn |
| | | | | 35 | | | | 40 | | | | | | 45 | |
| Met | Ile | Cys | Thr | Gln | Thr | Leu | Leu | Arg | His | Gln | Gly | Ser | Val | Thr | Ala |
| | | | | 50 | | | | 55 | | | | | | 60 | |
| Leu | Ala | Val | Ser | Arg | Gly | Arg | Leu | Phe | Ser | Gly | Ala | Val | Asp | Ser | Thr |
| | | | | | | | | | | | | | | | |
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Val Lys Val Trp Thr Cys

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gccaaacttg gttgaagact aggtcttccc tggcaagttc cggaaga atg gac tta 176

Met Asp Leu

1

ctg act ttt atc aac tct tct cac tgc caa ggc caa cag cat ctg agg 224

Leu Thr Phe Ile Asn Ser Ser His Cys Gln Gly Gln Gln His Leu Arg

5

10

15

tat agc ttt ttg gga gta cct gct ttc ttg cct cct gga gga tat ttt 272

Tyr Ser Phe Leu Gly Val Pro Ala Phe Leu Pro Pro Gly Gly Tyr Phe

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30

35

ctg tcc tgg ggc ttc atg gcc cct ctc ttc cct gtt aca cat tgc tgt 320

Leu Ser Trp Gly Phe Met Ala Pro Leu Phe Pro Val Thr His Cys Cys

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45

50

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Ala Ser Glu Pro Leu Gln Leu Xaa Pro Ser

55

60

tccacacggt ggggaaggatc ttgctgcttt cactcacagg accagggagt tyttcaatca 430

ggaggtgggt ttttgttccc ttcaggsctt tggcaacatc tagagacagt tttgattgcc 490

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| His | Leu | Arg | Tyr | Ser | Phe | Leu | Gly | Val | Pro | Ala | Phe | Leu | Pro | Pro | Gly |
| | | | | 20 | | | | 25 | | | | | | 30 | |
| Gly | Tyr | Phe | Leu | Ser | Trp | Gly | Phe | Met | Ala | Pro | Leu | Phe | Pro | Val | Thr |
| | | | 35 | | | | | 40 | | | | | | 45 | |
| His | Cys | Cys | Ala | Ser | Glu | Pro | Leu | Gln | Leu | Xaa | Pro | Ser | | | |
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Met

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tta cag agc aga aga cag atg ccc aaa cag gag aag gca ctt gcc cac 825
Leu Gln Ser Arg Arg Gln Met Pro Lys Gln Glu Lys Ala Leu Ala His
5 10 15
ggc cat acg gca ggt tgc cac aaa acc aag atg gca gcc ctt cct cag 873
Gly His Thr Ala Gly Cys His Lys Thr Lys Met Ala Ala Leu Pro Gln
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cgt gcc tca ctg cca ctc cca gag cca ggg agc ccc ata aaa ccc aca 921

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Arg Ala Ser Leu Pro Leu Pro Glu Pro Gly Ser Pro Ile Lys Pro Thr
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 Ser Cys Leu Lys Ser Ile Ser Gly Ser Leu Thr Ser Asn Arg Pro Trp
 50 55 60 65
 gag cca cca ggt ggg aaa agc gcc tct gcc aga gtc cag gcc ttg gga 1017
 Glu Pro Pro Gly Gly Lys Ser Ala Ser Ala Arg Val Gln Ala Leu Gly
 70 75 80
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<210> 126

<211> 81

<212> PRT

<213> Homo sapiens

<400> 126

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 Gln Arg Ala Ser Leu Pro Leu Pro Glu Pro Gly Ser Pro Ile Lys Pro
 35 40 45

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Thr Ser Cys Leu Lys Ser Ile Ser Gly Ser Leu Thr Ser Asn Arg Pro

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55

60

Trp Glu Pro Pro Gly Gly Lys Ser Ala Ser Ala Arg Val Gln Ala Leu

65

70

75

80

Gly

<210> 127

<211> 1085

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (734)..(886)

<220>

<221> unsure

<222> (276)

<223> g or t

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Met Leu Leu His Ser Ile Leu Asp Asn Arg Ala Arg

1 5 10

ccc tgt ctc aaa aaa aaa aaa aat ata tat ata tat ata tat tat ttt 817

Pro Cys Leu Lys Lys Lys Lys Asn Ile Tyr Ile Tyr Ile Tyr Tyr Phe

15 20 25

tat gag gtg aag tgc atc aaa ctt ggg aaa gat ttg agg agg ctg gga 865

Tyr Glu Val Lys Cys Ile Lys Leu Gly Lys Asp Leu Arg Arg Leu Gly

30 35 40

acc tcc tgg aaa acc act cct tgaagaaaga tatgagagac atttagaagt 916

Thr Ser Trp Lys Thr Thr Pro

45 50

gattcctgct ttcagaagga ggtggattca aatacatcaa aagtccttc ctctgctaag 976

tgtttatagt tcaatgaata atttcaatat ttgtatgtgt tcttgtcatt ttattttttt 1036

ctgaaaaact tccaaaaatt tgaaaataaa attacagcct tttcttctt 1085

<210> 128

<211> 51

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<212> PRT

<213> Homo sapiens

<400> 128

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15

Lys Lys Lys Asn Ile Tyr Ile Tyr Ile Tyr Tyr Phe Tyr Glu Val Lys

20

25

30

Cys Ile Lys Leu Gly Lys Asp Leu Arg Arg Leu Gly Thr Ser Trp Lys

35

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45

Thr Thr Pro

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<210> 129

<211> 1544

<212> DNA

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<222> (1076)

<223> g or a

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| atatttttag tatatgaagt tatccaggga cttgatattc ataattcagt gctgtggaaa 60 | 3 |
| tgaaaaaaat gattgaagag gtggaacgga aatgacctta gggggaaaaa aaaggaccaa 20 | 4 |
| agaagtctga ttaaaagttg aaatcagtat ttctgaattc aaattgcttg aatttcctaaa 80 | 4 |
| atagtcagta aaggatctaa tagaaccaga attatttggg tgaattctgc aggttttatg 40 | 5 |
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80

ctccacacc ctggatctca ctctcctctt agtaacagag acactcctga ggttggactt 8
40

ccttgctttt ctctacttcc aaatcacaat ttcttacaac caagctttgt gctcccgagt 9
00

aagcagggat gtactagggg aatgtaaaac tgcaaactta aaaacctgca tcttcttgaa 9
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gcatcagttt tacttaccaa atggttttaga gtcataagat gacctatttt tatataaaag 10
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80

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cctttgaggc caggaagctc ccaggcatat atgcttctag gttaggattg tcctgactca 15
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<210> 130

<211> 508

<212> DNA

<213> Homo sapiens

<400> 130

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PH-1064PCT-US seq.TXT

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40

ccacatgctc ctacaatcca cagagatgcc tgtctgcagg ttcttgaagt tattgttagt 3
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60

tcctcatttg ctttttaacc tacactgagg agtctttgtc aggttgcact gattttccaa 4
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<221> unsure

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<223> g or t

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<222> (472)

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20

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| aggctcaaaa gaaatttggc tccatccaag aaggctccag ctcccctact ggcccctggs 00 | 3 |
| ttcaggccca caccctggg ccagggccag agagtgtgtc tcaggagaat tcaatgggct 60 | 3 |
| ctagagagac acacagaaag tttgggcatt tgggaaattt tcaaggrrgt atgtntsgyt 20 | 4 |
| cacgtatggw gcaggttgtc ctgggtccykg ggtgcaggga agtgggctgc anggaagtgg 80 | 4 |
| attggagggg agcttgagga atataaggag cgggggtgga gactcaggct atggacaagg 40 | 5 |
| acagcccaa ggttgggaag acctggcctt agtcgtcctc agcctagggg cagggcagtg 00 | 6 |
| aagaaagctc tccccgctcc tgctgtaatg acccagagta gcctccccag gccggcatct 60 | 6 |
| tatgtgtgtc ttccaccatc ctcatgggtg cacttttcta ggctgtctc ccagcattgt 60 | 7 |

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<210> 132

<211> 508

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> (223)

<223> a, c, g or t

<220>

<221> unsure

<222> (237)

<223> a, c, g or t

<220>

<221> unsure

<222> (380)

<223> a, c, g or t

<220>

<221> unsure

<222> (468)

<223> a, c, g or t

<400> 132

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atataaacat gcatacaggc atgcacatgc acacacaaat acncatacac acacacnagc 2
40

acacacacac caccaccacc atcatcagag gaacttacag aaaaggggac atttatagat 3
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tcctaggaat atgccaaagc ttttcaaagc ctctatggac agctcattcc ttaacttttc 3
60

ctctttaaaa tcttttttan cttcttattt gccccagcca ctatcactgc ctcaggcagc 4
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<210> 133

<211> 484

<212> DNA

<213> Homo sapiens

<220>

<221> unsure

<222> (313)

<223> a,c,g or t

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<223> g or c

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<221> unsure

<222> (401)

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80

aggcccagca agatccctca tgcctgtaat ccagcactt tggggggcca aggcaggagg 2
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PH-1064PCT-US seq.TXT

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aggtgggagg aatgcttgag gatcggaggt caaggctgca stgagccaat attgtgccac 4
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80

ccgc 4
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<210> 134

<211> 605

<212> DNA

<213> Homo sapiens

<400> 134

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80

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caaattagtt ctttttcccc cagaggggaa agttatgttc tgcaaatagt gtgtgtctta 3
60

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80

aacatcagta cacttgatcatt ttcacatgtg tttaatgtga cagtttttca gtactgtatg 5
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<221> CDS

<222> (2)..(151)

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<222> (689)

<223> g or a

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5

10

15

tac ctc tct cca cag cag ggc tct caa aac cat ttt gat ccc cca ttg 97

Tyr Leu Ser Pro Gln Gln Gly Ser Gln Asn His Phe Asp Pro Pro Leu

20

25

30

gca gag ggt tcc cct ctt tac aga gtt cag tca tta aaa gca tgg atc 145

Ala Glu Gly Ser Pro Leu Tyr Arg Val Gln Ser Leu Lys Ala Trp Ile

35

40

45

agc tgt taatctcatt ggaggaggga actgtttcct gcattcattc atctgggaac 201

Ser Cys

50

cttcttgagt agccactgtc tgccagccac tgctctagag atgggaaaac agcacggaac 261

aaaaccaagg tctttcttcc agcgaattta tatccttcag gaagctgggt cctgccacca 321

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<210> 136

<211> 50

<212> PRT

<213> Homo sapiens

<400> 136

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10

15

Tyr Leu Ser Pro Gln Gln Gly Ser Gln Asn His Phe Asp Pro Pro Leu

20

25

30

Ala Glu Gly Ser Pro Leu Tyr Arg Val Gln Ser Leu Lys Ala Trp Ile

35

40

45

Ser Cys

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<210> 137

<211> 835

<212> DNA

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<222> (535)..(729)

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Met

1

agc tat cct ttc aaa cag cta ttg gca agt ttt aaa ccc aaa ata tat 585

Ser Tyr Pro Phe Lys Gln Leu Leu Ala Ser Phe Lys Pro Lys Ile Tyr

5

10

15

aca cat agt tct gta ata aaa ctg ttt gac ttc tca agt aac atg act 633

Thr His Ser Ser Val Ile Lys Leu Phe Asp Phe Ser Ser Asn Met Thr

20

25

30

tcc tta ttt ctg aac agt act ggt tac ttt caa aat gaa ttt tta ttg 681

Ser Leu Phe Leu Asn Ser Thr Gly Tyr Phe Gln Asn Glu Phe Leu Leu

35

40

45

aga ttt tcc att aac tat ttt ttt caa aga ctc aaa ttt tgt acc aag 729

Arg Phe Ser Ile Asn Tyr Phe Phe Gln Arg Leu Lys Phe Cys Thr Lys

50

55

60

65

taaatccagg ctttatgtac aaacatgttg tttgttttat ttggggctgg gggaggtata 789

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<210> 138

PH-1064PCT-US seq.TXT

<211> 65

<212> PRT

<213> Homo sapiens

<400> 138

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15

Tyr Thr His Ser Ser Val Ile Lys Leu Phe Asp Phe Ser Ser Asn Met

20

25

30

Thr Ser Leu Phe Leu Asn Ser Thr Gly Tyr Phe Gln Asn Glu Phe Leu

35

40

45

Leu Arg Phe Ser Ile Asn Tyr Phe Phe Gln Arg Leu Lys Phe Cys Thr

50

55

60

Lys

65

<210> 139

<211> 626

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<213> Homo sapiens

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<222> (1)..(201)

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<400> 139

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Cys Phe Ser Val Thr Val Leu Leu Glu Val Lys Phe Ile Gln Gly Asn

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ttg ctc act aac tat tcc ttt tta tgg cct ggg gtt aaa ggg agc atg 96

PH-1064PCT-US seq.TXT

Leu Leu Thr Asn Tyr Ser Phe Leu Trp Pro Gly Val Lys Gly Ser Met

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25

30

gct cac act ggt gaa aat aag gaa ggc ctg gtc tta tct tgt att aat 144

Ala His Thr Gly Glu Asn Lys Glu Gly Leu Val Leu Ser Cys Ile Asn

35

40

45

aat act ggc tgc att cca cca gcc aga gat ttc tat ctg cga aga cct 192

Asn Thr Gly Cys Ile Pro Pro Ala Arg Asp Phe Tyr Leu Arg Arg Pro

50

55

60

atg aaa cac tgaagagaaa ttaggcaga aggaaatggc cacatatcac 241

Met Lys His

65

aagttctatt atatattctt ttgtaaatac atattgtata ttacttggat gttttcttat 301

atcatttact gtctttttga gttaatgtca gtttttactc tctcaaytta cwatgtwaca 361

twgtaartaa cataatgtcc tttattattt atatttaagc atctaacata tagagttggt 421

ttcatataag ttttaagataa atgtcaaaaa tatatgttct tttgtttttc tttgctttta 481

aattatgtat cttttccttt tctttttttt aagaataatt tattgttcag gagaaagaat 541

gtatatgtaa ctgaaactat ctgaagaatg cacattgaag gccgtgaggt actgataaac 601

taaagaattt attattcaaa atact 626

<210> 140

<211> 67

<212> PRT

<213> Homo sapiens

<400> 140

Cys Phe Ser Val Thr Val Leu Leu Glu Val Lys Phe Ile Gln Gly Asn

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| 1 | 5 | 10 | 15 | | | | | | | | | | | | |
| Leu | Leu | Thr | Asn | Tyr | Ser | Phe | Leu | Trp | Pro | Gly | Val | Lys | Gly | Ser | Met |
| | 20 | | 25 | | 30 | | | | | | | | | | |
| Ala | His | Thr | Gly | Glu | Asn | Lys | Glu | Gly | Leu | Val | Leu | Ser | Cys | Ile | Asn |
| | 35 | | 40 | | 45 | | | | | | | | | | |
| Asn | Thr | Gly | Cys | Ile | Pro | Pro | Ala | Arg | Asp | Phe | Tyr | Leu | Arg | Arg | Pro |
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| Met | Lys | His | | | | | | | | | | | | | |

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<210> 141

<211> 525

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (103)..(525)

<400> 141

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Met Ser Leu Ser

1

agg gac ctc aag gac gac ttt cac agt gac acg gta ctc tcc atc tta 162
 Arg Asp Leu Lys Asp Asp Phe His Ser Asp Thr Val Leu Ser Ile Leu

PH-1064PCT-US seq.TXT

| | | | | |
|---|-----|-----|-----|-----|
| 5 | 10 | 15 | 20 | |
| aat gag cag cgc att cgg ggc att tta tgc gat gtc act atc att gtg | | | | 210 |
| Asn Glu Gln Arg Ile Arg Gly Ile Leu Cys Asp Val Thr Ile Ile Val | | | | |
| | 25 | 30 | 35 | |
| gaa gat acc aaa ttt aaa gcc cat agc aat gtt ctg gca gct tca agc | | | | 258 |
| Glu Asp Thr Lys Phe Lys Ala His Ser Asn Val Leu Ala Ala Ser Ser | | | | |
| | 40 | 45 | 50 | |
| ctg tat ttt aaa aat atc ttt tgg agc cat aca atc tgt att tcc agc | | | | 306 |
| Leu Tyr Phe Lys Asn Ile Phe Trp Ser His Thr Ile Cys Ile Ser Ser | | | | |
| | 55 | 60 | 65 | |
| cac gtc ctg gag ctg gac gat ctc aaa gct gaa gtg ttt act gaa ata | | | | 354 |
| His Val Leu Glu Leu Asp Asp Leu Lys Ala Glu Val Phe Thr Glu Ile | | | | |
| | 70 | 75 | 80 | |
| ctt aat tat atc tac agt tcc aca gtc gtt gtc aag aga cag gaa aca | | | | 402 |
| Leu Asn Tyr Ile Tyr Ser Ser Thr Val Val Val Lys Arg Gln Glu Thr | | | | |
| | 85 | 90 | 95 | 100 |
| gtc act gat ctc gca gct gca gga aaa aag ctg gga ata tcg ttc ttg | | | | 450 |
| Val Thr Asp Leu Ala Ala Ala Gly Lys Lys Leu Gly Ile Ser Phe Leu | | | | |
| | 105 | 110 | 115 | |
| gaa gac ctt act gat cgc aac ttc tca aat tcc ccg ggt ccc tat gta | | | | 498 |
| Glu Asp Leu Thr Asp Arg Asn Phe Ser Asn Ser Pro Gly Pro Tyr Val | | | | |
| | 120 | 125 | 130 | |
| ttc tgt att act gaa aag gga gtg gtt | | | | 525 |
| Phe Cys Ile Thr Glu Lys Gly Val Val | | | | |

135

<210> 142

<211> 141

<212> PRT

<213> Homo sapiens

<400> 142

Met Ser Leu Ser Arg Asp Leu Lys Asp Asp Phe His Ser Asp Thr Val

1 5 10 15

Leu Ser Ile Leu Asn Glu Gln Arg Ile Arg Gly Ile Leu Cys Asp Val

20 25 30

Thr Ile Ile Val Glu Asp Thr Lys Phe Lys Ala His Ser Asn Val Leu

35 40 45

Ala Ala Ser Ser Leu Tyr Phe Lys Asn Ile Phe Trp Ser His Thr Ile

50 55 60

Cys Ile Ser Ser His Val Leu Glu Leu Asp Asp Leu Lys Ala Glu Val

65 70 75 80

Phe Thr Glu Ile Leu Asn Tyr Ile Tyr Ser Ser Thr Val Val Val Lys

85 90 95

Arg Gln Glu Thr Val Thr Asp Leu Ala Ala Ala Gly Lys Lys Leu Gly

100 105 110

Ile Ser Phe Leu Glu Asp Leu Thr Asp Arg Asn Phe Ser Asn Ser Pro

115 120 125

Gly Pro Tyr Val Phe Cys Ile Thr Glu Lys Gly Val Val

130 135 140

PH-1064PCT-US seq.TXT

<210> 143

<211> 1827

<212> DNA

<213> Homo sapiens

<220>

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<222> (138)..(1307)

<400> 143

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cccggccagg gagggcc atg att tcc ctc ccg ggg ccc ctg gtg acc aac 170

Met Ile Ser Leu Pro Gly Pro Leu Val Thr Asn

1

5

10

ttg ctg cgg ttt ttg ttc ctg ggg ctg agt gcc ctc gcg ccc ccc tcg 218
Leu Leu Arg Phe Leu Phe Leu Gly Leu Ser Ala Leu Ala Pro Pro Ser

15

20

25

cgg gcc cag ctg caa ctg cac ttg ccc gcc aac cgg ttg cag gcg gtg 266
Arg Ala Gln Leu Gln Leu His Leu Pro Ala Asn Arg Leu Gln Ala Val

30

35

40

gag gga ggg gaa gtg gtg ctt cca gcg tgg tac acc ttg cac ggg gag 314
Glu Gly Gly Glu Val Val Leu Pro Ala Trp Tyr Thr Leu His Gly Glu

45

50

55

gtg tct tca tcc cag cca tgg gag gtg ccc ttt gtg atg tgg ttc ttc 362

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Ser | Ser | Ser | Gln | Pro | Trp | Glu | Val | Pro | Phe | Val | Met | Trp | Phe | Phe | | |
| 60 | | | | | 65 | | | | | 70 | | | | | 75 | | |
| aaa | cag | aaa | gaa | aag | gag | gat | cag | gtg | ttg | tcc | tac | atc | aat | ggg | gtc | 410 | |
| Lys | Gln | Lys | Glu | Lys | Glu | Asp | Gln | Val | Leu | Ser | Tyr | Ile | Asn | Gly | Val | | |
| | | | | 80 | | | | | 85 | | | | | 90 | | | |
| aca | aca | agc | aaa | cct | gga | gta | tcc | ttg | gtc | tac | tcc | atg | ccc | tcc | cgg | 458 | |
| Thr | Thr | Ser | Lys | Pro | Gly | Val | Ser | Leu | Val | Tyr | Ser | Met | Pro | Ser | Arg | | |
| | | | 95 | | | | | 100 | | | | | 105 | | | | |
| aac | ctg | tcc | ctg | cgg | ctg | gag | ggg | ctc | cag | gag | aaa | gac | tct | ggc | ccc | 506 | |
| Asn | Leu | Ser | Leu | Arg | Leu | Glu | Gly | Leu | Gln | Glu | Lys | Asp | Ser | Gly | Pro | | |
| | | | 110 | | | | | 115 | | | | | 120 | | | | |
| tac | agc | tgc | tcc | gtg | aat | gtg | caa | gac | aaa | caa | ggc | aaa | tct | agg | ggc | 554 | |
| Tyr | Ser | Cys | Ser | Val | Asn | Val | Gln | Asp | Lys | Gln | Gly | Lys | Ser | Arg | Gly | | |
| | | | 125 | | | | | 130 | | | | | 135 | | | | |
| cac | agc | atc | aaa | acc | tta | gaa | ctc | aat | gta | ctg | gtt | cct | cca | gct | cct | 602 | |
| His | Ser | Ile | Lys | Thr | Leu | Glu | Leu | Asn | Val | Leu | Val | Pro | Pro | Ala | Pro | | |
| | | | 140 | | | | | 145 | | | | | 150 | | 155 | | |
| cca | tcc | tgc | cgt | ctc | cag | ggg | gtg | ccc | cat | gtg | ggg | gca | aac | gtg | acc | 650 | |
| Pro | Ser | Cys | Arg | Leu | Gln | Gly | Val | Pro | His | Val | Gly | Ala | Asn | Val | Thr | | |
| | | | | 160 | | | | | 165 | | | | 170 | | | | |
| ctg | agc | tgc | cag | tct | cca | agg | agt | aag | cct | gct | gtc | caa | tac | cag | tgg | 698 | |
| Leu | Ser | Cys | Gln | Ser | Pro | Arg | Ser | Lys | Pro | Ala | Val | Gln | Tyr | Gln | Trp | | |
| | | | | 175 | | | | | 180 | | | | 185 | | | | |
| gat | cgg | cag | ctt | cca | tcc | ttc | cag | act | ttc | ttt | gca | cca | gca | tta | gat | 746 | |

Asp Arg Gln Leu Pro Ser Phe Gln Thr Phe Phe Ala Pro Ala Leu Asp

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PH-1064PCT-US seq.TXT

Ala Arg Ala Leu Trp Pro Pro His Gly Pro Pro Arg Pro Gly Ala Leu

320

325

330

acc ccc acg ccc agt ctc tcc agc cag gcc ctg ccc tca cca aga ctg 1178

Thr Pro Thr Pro Ser Leu Ser Ser Gln Ala Leu Pro Ser Pro Arg Leu

335

340

345

ccc acg aca gat ggg gcc cac cct caa cca ata tcc ccc atc cct ggt 1226

Pro Thr Thr Asp Gly Ala His Pro Gln Pro Ile Ser Pro Ile Pro Gly

350

355

360

ggg gtt tct tcc tct ggc ttg agc cgc atg ggt gct gtg cct gtg atg 1274

Gly Val Ser Ser Ser Gly Leu Ser Arg Met Gly Ala Val Pro Val Met

365

370

375

gtg cct gcc cag agt caa gct ggc tct ctg gta tgatgacccc accactcatt 1327

Val Pro Ala Gln Ser Gln Ala Gly Ser Leu Val

380

385

390

ggctaaagga tttgggggtct ctcccttcccta taagggtcac ctctagcaca gaggcctgag 1387

tcatgggaaa gagtcacact cctgaccctt agtactctgc cccacacctt ctttactgtg 1447

ggaaaaccat ctcaagtaaga cctaagtgtc caggagacag aaggagaaga ggaagtggat 1507

ctggaattgg gaggagcctc caccaccccc tgactcctcc ttatgaagcc agctgctgaa 1567

attagctact caccaagagt gaggggcaga gacttccagt cactgagtct cccaggcccc 1627

cttgatctgt accccacccc tatctaacac cacccttggc tcccactcca gctccctgta 1687

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<210> 144

PH-1064PCT-US seq.TXT

<211> 390

<212> PRT

<213> Homo sapiens

<400> 144

Met Ile Ser Leu Pro Gly Pro Leu Val Thr Asn Leu Leu Arg Phe Leu

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Phe Leu Gly Leu Ser Ala Leu Ala Pro Pro Ser Arg Ala Gln Leu Gln

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Leu His Leu Pro Ala Asn Arg Leu Gln Ala Val Glu Gly Gly Glu Val

35 40 45

Val Leu Pro Ala Trp Tyr Thr Leu His Gly Glu Val Ser Ser Ser Gln

50 55 60

Pro Trp Glu Val Pro Phe Val Met Trp Phe Phe Lys Gln Lys Glu Lys

65 70 75 80

Glu Asp Gln Val Leu Ser Tyr Ile Asn Gly Val Thr Thr Ser Lys Pro

85 90 95

Gly Val Ser Leu Val Tyr Ser Met Pro Ser Arg Asn Leu Ser Leu Arg

100 105 110

Leu Glu Gly Leu Gln Glu Lys Asp Ser Gly Pro Tyr Ser Cys Ser Val

115 120 125

Asn Val Gln Asp Lys Gln Gly Lys Ser Arg Gly His Ser Ile Lys Thr

130 135 140

Leu Glu Leu Asn Val Leu Val Pro Pro Ala Pro Pro Ser Cys Arg Leu

145 150 155 160

PH-1064PCT-US seq.TXT

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| Gln Gly Val Pro His Val Gly Ala Asn Val Thr Leu Ser Cys Gln Ser | | | |
| | 165 | 170 | 175 |
| Pro Arg Ser Lys Pro Ala Val Gln Tyr Gln Trp Asp Arg Gln Leu Pro | | | |
| | 180 | 185 | 190 |
| Ser Phe Gln Thr Phe Phe Ala Pro Ala Leu Asp Val Ile Arg Gly Ser | | | |
| | 195 | 200 | 205 |
| Leu Ser Leu Thr Asn Leu Ser Ser Ser Met Ala Gly Val Tyr Val Cys | | | |
| | 210 | 215 | 220 |
| Lys Ala His Asn Glu Val Gly Thr Ala Gln Cys Asn Val Thr Leu Glu | | | |
| 225 | 230 | 235 | 240 |
| Val Ser Thr Gly Pro Gly Ala Ala Val Val Ala Gly Ala Val Val Gly | | | |
| | 245 | 250 | 255 |
| Thr Leu Val Gly Leu Gly Leu Leu Ala Gly Leu Val Leu Leu Tyr His | | | |
| | 260 | 265 | 270 |
| Arg Arg Gly Lys Ala Leu Glu Glu Pro Ala Asn Asp Ile Lys Glu Asp | | | |
| | 275 | 280 | 285 |
| Ala Ile Ala Pro Arg Thr Leu Pro Trp Pro Lys Ser Ser Asp Thr Ile | | | |
| | 290 | 295 | 300 |
| Ser Lys Asn Gly Thr Leu Ser Ser Val Thr Ser Ala Arg Ala Leu Trp | | | |
| 305 | 310 | 315 | 320 |
| Pro Pro His Gly Pro Pro Arg Pro Gly Ala Leu Thr Pro Thr Pro Ser | | | |
| | 325 | 330 | 335 |
| Leu Ser Ser Gln Ala Leu Pro Ser Pro Arg Leu Pro Thr Thr Asp Gly | | | |
| | 340 | 345 | 350 |

PH-1064PCT-US seq.TXT

Ala His Pro Gln Pro Ile Ser Pro Ile Pro Gly Gly Val Ser Ser Ser

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360

365

Gly Leu Ser Arg Met Gly Ala Val Pro Val Met Val Pro Ala Gln Ser

370

375

380

Gln Ala Gly Ser Leu Val

385

390

<210> 145

<211> 3466

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (84)..(2726)

<400> 145

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gggccgccgc cgccaccgcc gcc atg aag aag cag ttc aac cgc atg aag cag 113

Met Lys Lys Gln Phe Asn Arg Met Lys Gln

1

5

10

ctg gct aac cag acc gtg ggc aga gct gag aaa aca gaa gtc ctt agt 161

Leu Ala Asn Gln Thr Val Gly Arg Ala Glu Lys Thr Glu Val Leu Ser

15

20

25

gaa gat cta tta cag att gag aga cgc ctg gac acg gtg cgg tca ata 209

Glu Asp Leu Leu Gln Ile Glu Arg Arg Leu Asp Thr Val Arg Ser Ile

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|---|-----|-----|----|
| 30 | 35 | 40 | |
| tgc cac cat tcc cat aag cgc ttg gtg gca tgt ttc cag ggc cag cat | 257 | | |
| Cys His His Ser His Lys Arg Leu Val Ala Cys Phe Gln Gly Gln His | | | |
| 45 | 50 | 55 | |
| ggc acc gat gcc gag agg aga cac aaa aaa ctg cct ctg aca gct ctt | 305 | | |
| Gly Thr Asp Ala Glu Arg Arg His Lys Lys Leu Pro Leu Thr Ala Leu | | | |
| 60 | 65 | 70 | |
| gct caa aat atg caa gaa gca tcg act cag ctg gaa gac tct ctc ctg | 353 | | |
| Ala Gln Asn Met Gln Glu Ala Ser Thr Gln Leu Glu Asp Ser Leu Leu | | | |
| 75 | 80 | 85 | 90 |
| ggg aag atg ctg gag acg tgt gga gat gct gag aat cag ctg gct ctc | 401 | | |
| Gly Lys Met Leu Glu Thr Cys Gly Asp Ala Glu Asn Gln Leu Ala Leu | | | |
| 95 | 100 | 105 | |
| gag ctc tcc cag cac gaa gtc ttt gtt gag aag gag atc gtg gac cct | 449 | | |
| Glu Leu Ser Gln His Glu Val Phe Val Glu Lys Glu Ile Val Asp Pro | | | |
| 110 | 115 | 120 | |
| ctg tac ggc ata gct gag gtg gag att ccc aac atc cag aag cag agg | 497 | | |
| Leu Tyr Gly Ile Ala Glu Val Glu Ile Pro Asn Ile Gln Lys Gln Arg | | | |
| 125 | 130 | 135 | |
| aag cag ctt gca aga ttg gtg tta gac tgg gat tca gtc aga gcc agg | 545 | | |
| Lys Gln Leu Ala Arg Leu Val Leu Asp Trp Asp Ser Val Arg Ala Arg | | | |
| 140 | 145 | 150 | |
| tgg aac caa gct cac aaa tcc tca gga acc aac ttt cag ggg ctt cca | 593 | | |
| Trp Asn Gln Ala His Lys Ser Ser Gly Thr Asn Phe Gln Gly Leu Pro | | | |

PH-1064PCT-US seq.TXT

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|---|-----|-----|-----|--|
| 155 | 160 | 165 | 170 | |
| tca aaa ata gat act cta aag gaa gag atg gat gaa gct gga aat aaa | 641 | | | |
| Ser Lys Ile Asp Thr Leu Lys Glu Glu Met Asp Glu Ala Gly Asn Lys | | | | |
| 175 | 180 | 185 | | |
| gta gaa cag tgc aag gat caa ctt gca gca gac atg tac aac ttt atg | 689 | | | |
| Val Glu Gln Cys Lys Asp Gln Leu Ala Ala Asp Met Tyr Asn Phe Met | | | | |
| 190 | 195 | 200 | | |
| gcc aaa gaa ggg gag tat ggc aaa ttc ttt gtt acg tta tta gaa gcc | 737 | | | |
| Ala Lys Glu Gly Glu Tyr Gly Lys Phe Phe Val Thr Leu Leu Glu Ala | | | | |
| 205 | 210 | 215 | | |
| caa gca gat tac cat aga aaa gca tta gca gtc tta gaa aag acc ctc | 785 | | | |
| Gln Ala Asp Tyr His Arg Lys Ala Leu Ala Val Leu Glu Lys Thr Leu | | | | |
| 220 | 225 | 230 | | |
| ccc gaa atg cga gcc cat caa gat aag tgg gcg gaa aaa cca gcc ttt | 833 | | | |
| Pro Glu Met Arg Ala His Gln Asp Lys Trp Ala Glu Lys Pro Ala Phe | | | | |
| 235 | 240 | 245 | 250 | |
| ggg act ccc cta gaa gaa cac ctg aag agg agc ggg cgc gag att gcg | 881 | | | |
| Gly Thr Pro Leu Glu Glu His Leu Lys Arg Ser Gly Arg Glu Ile Ala | | | | |
| 255 | 260 | 265 | | |
| ctg ccc att gaa gcc tgt gtc atg ctg ctt ctg gag aca ggc atg aag | 929 | | | |
| Leu Pro Ile Glu Ala Cys Val Met Leu Leu Leu Glu Thr Gly Met Lys | | | | |
| 270 | 275 | 280 | | |
| gag gag ggc ctt ttc cga att ggg gct ggg gcc tcc aag tta aag aag | 977 | | | |
| Glu Glu Gly Leu Phe Arg Ile Gly Ala Gly Ala Ser Lys Leu Lys Lys | | | | |

PH-1064PCT-US seq.TXT

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|---|-----|-----|------|
| 285 | 290 | 295 | |
| ctg aaa gct gct ttg gac tgt tct act tct cac ctg gat gag ttc tat | | | 1025 |
| Leu Lys Ala Ala Leu Asp Cys Ser Thr Ser His Leu Asp Glu Phe Tyr | | | |
| 300 | 305 | 310 | |
| tca gac ccc cat gct gta gca ggt gct tta aaa tcc tat tta cgg gaa | | | 1073 |
| Ser Asp Pro His Ala Val Ala Gly Ala Leu Lys Ser Tyr Leu Arg Glu | | | |
| 315 | 320 | 325 | 330 |
| ttg cct gaa cct ttg atg act ttt aat ctg tat gaa gaa tgg aca caa | | | 1121 |
| Leu Pro Glu Pro Leu Met Thr Phe Asn Leu Tyr Glu Glu Trp Thr Gln | | | |
| 335 | 340 | 345 | |
| gtt gca agt gtg cag gat caa gac aaa aaa ctt caa gac ttg tgg aga | | | 1169 |
| Val Ala Ser Val Gln Asp Gln Asp Lys Lys Leu Gln Asp Leu Trp Arg | | | |
| 350 | 355 | 360 | |
| aca tgt cag aag ttg cca cca caa aat ttt gtt aac ttt aga tat ttg | | | 1217 |
| Thr Cys Gln Lys Leu Pro Pro Gln Asn Phe Val Asn Phe Arg Tyr Leu | | | |
| 365 | 370 | 375 | |
| atc aag ttc ctt gca aag ctt gct cag acc agc gat gtg aat aaa atg | | | 1265 |
| Ile Lys Phe Leu Ala Lys Leu Ala Gln Thr Ser Asp Val Asn Lys Met | | | |
| 380 | 385 | 390 | |
| act ccc agc aac att gcg att gtg tta ggc cct aac ttg tta tgg gcc | | | 1313 |
| Thr Pro Ser Asn Ile Ala Ile Val Leu Gly Pro Asn Leu Leu Trp Ala | | | |
| 395 | 400 | 405 | 410 |
| aga aat gaa gga aca ctt gct gaa atg gca gca gcc aca tcc gtc cat | | | 1361 |
| Arg Asn Glu Gly Thr Leu Ala Glu Met Ala Ala Ala Thr Ser Val His | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 415 | 420 | 425 | |
| gtg gtt gca gtg att gaa ccc atc att cag cat gcc gac tgg ttc ttc | | | 1409 |
| Val Val Ala Val Ile Glu Pro Ile Ile Gln His Ala Asp Trp Phe Phe | | | |
| 430 | 435 | 440 | |
| cct gaa gag gtg gaa ttt aat gta tca gaa gca ttt gta cct ctc acc | | | 1457 |
| Pro Glu Glu Val Glu Phe Asn Val Ser Glu Ala Phe Val Pro Leu Thr | | | |
| 445 | 450 | 455 | |
| acc ccg agt tct aat cac tca ttc cac act gga aac gac tct gac tcg | | | 1505 |
| Thr Pro Ser Ser Asn His Ser Phe His Thr Gly Asn Asp Ser Asp Ser | | | |
| 460 | 465 | 470 | |
| ggg acc ctg gag agg aag cgg cct gct agc atg gcg gtg atg gaa gga | | | 1553 |
| Gly Thr Leu Glu Arg Lys Arg Pro Ala Ser Met Ala Val Met Glu Gly | | | |
| 475 | 480 | 485 | 490 |
| gac ttg gtg aag aag gaa agc ttt ggt gtg aag ctt atg gac ttc cag | | | 1601 |
| Asp Leu Val Lys Lys Glu Ser Phe Gly Val Lys Leu Met Asp Phe Gln | | | |
| 495 | 500 | 505 | |
| gcc cac cgg cgg ggt ggc act cta aat aga aag cac ata tcc ccc gct | | | 1649 |
| Ala His Arg Arg Gly Gly Thr Leu Asn Arg Lys His Ile Ser Pro Ala | | | |
| 510 | 515 | 520 | |
| ttc cag ccg cca ctt ccg ccc aca gat ggc agc acc gtg gtg ccc gct | | | 1697 |
| Phe Gln Pro Pro Leu Pro Pro Thr Asp Gly Ser Thr Val Val Pro Ala | | | |
| 525 | 530 | 535 | |
| ggc cca gag ccc cct ccc cag agc tct agg gct gaa agc agc tct ggg | | | 1745 |
| Gly Pro Glu Pro Pro Pro Gln Ser Ser Arg Ala Glu Ser Ser Ser Gly | | | |

PH-1064PCT-US seq.TXT

| | | | |
|---|-----|-----|------|
| 540 | 545 | 550 | |
| ggt ggg act gtc ccc tct tcc gcg ggc ata ctg gag cag ggg ccg agc | | | 1793 |
| Gly Gly Thr Val Pro Ser Ser Ala Gly Ile Leu Glu Gln Gly Pro Ser | | | |
| 555 | 560 | 565 | 570 |
| cca ggc gac ggc agt cct ccc aaa ccg aag gac cct gta tct gca gct | | | 1841 |
| Pro Gly Asp Gly Ser Pro Pro Lys Pro Lys Asp Pro Val Ser Ala Ala | | | |
| | 575 | 580 | 585 |
| gtg cca gca cca ggg aga aac aac agt cag ata gca tct ggc caa aat | | | 1889 |
| Val Pro Ala Pro Gly Arg Asn Asn Ser Gln Ile Ala Ser Gly Gln Asn | | | |
| | 590 | 595 | 600 |
| cag ccc cag gca gct gct ggc tcc cac cag ctc tcc atg ggc caa cct | | | 1937 |
| Gln Pro Gln Ala Ala Ala Gly Ser His Gln Leu Ser Met Gly Gln Pro | | | |
| | 605 | 610 | 615 |
| cac aat gct gca ggg ccc agc ccg cat aca ctg cgc cga gct gtt aaa | | | 1985 |
| His Asn Ala Ala Gly Pro Ser Pro His Thr Leu Arg Arg Ala Val Lys | | | |
| | 620 | 625 | 630 |
| aaa ccc gct cca gca ccc ccg aaa ccg ggc aac cca cct cct ggc cac | | | 2033 |
| Lys Pro Ala Pro Ala Pro Pro Lys Pro Gly Asn Pro Pro Pro Gly His | | | |
| 635 | 640 | 645 | 650 |
| ccc ggg ggc cag agt tct tca gga aca tct cag cat cca ccc agt ctg | | | 2081 |
| Pro Gly Gly Gln Ser Ser Ser Gly Thr Ser Gln His Pro Pro Ser Leu | | | |
| | 655 | 660 | 665 |
| tca cca aag cca ccc acc cga agc ccc tct cct ccc acc cag cac acg | | | 2129 |
| Ser Pro Lys Pro Pro Thr Arg Ser Pro Ser Pro Pro Thr Gln His Thr | | | |

PH-1064PCT-US seq.TXT

| | | | |
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| 670 | 675 | 680 | |
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| Gly Gln Pro Pro Gly Gln Pro Ser Ala Pro Ser Gln Leu Ser Ala Pro | | | |
| 685 | 690 | 695 | |
| cgg agg tac tcc agc agc ttg tct cca atc caa gct ccc aat cac cca | 2225 | | |
| Arg Arg Tyr Ser Ser Ser Leu Ser Pro Ile Gln Ala Pro Asn His Pro | | | |
| 700 | 705 | 710 | |
| ccg ccg cag ccc cct acg cag gcc acg cca ctg atg cac acc aaa ccc | 2273 | | |
| Pro Pro Gln Pro Pro Thr Gln Ala Thr Pro Leu Met His Thr Lys Pro | | | |
| 715 | 720 | 725 | 730 |
| aat agc cag ggc cct ccc aac ccc atg gca ttg ccc agt gag cat gga | 2321 | | |
| Asn Ser Gln Gly Pro Pro Asn Pro Met Ala Leu Pro Ser Glu His Gly | | | |
| 735 | 740 | 745 | |
| ctt gag cag cca tct cac acc cct ccc cag act cca acg ccc ccc agt | 2369 | | |
| Leu Glu Gln Pro Ser His Thr Pro Pro Gln Thr Pro Thr Pro Pro Ser | | | |
| 750 | 755 | 760 | |
| act ccg ccc cta gga aaa cag aac ccc agt ctg cca gct cct cag acc | 2417 | | |
| Thr Pro Pro Leu Gly Lys Gln Asn Pro Ser Leu Pro Ala Pro Gln Thr | | | |
| 765 | 770 | 775 | |
| ctg gca ggg ggt aac cct gaa act gca cag cca cat gct gga acc tta | 2465 | | |
| Leu Ala Gly Gly Asn Pro Glu Thr Ala Gln Pro His Ala Gly Thr Leu | | | |
| 780 | 785 | 790 | |
| ccg aga ccg aga cca gta cca aag cca agg aac cgg ccc agc gtg ccc | 2513 | | |
| Pro Arg Pro Arg Pro Val Pro Lys Pro Arg Asn Arg Pro Ser Val Pro | | | |

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| | | | | |
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| cca ccc ccc caa cct cct ggt gtc cac tca gct ggg gac agc agc ctc | 2561 | | | |
| Pro Pro Pro Gln Pro Pro Gly Val His Ser Ala Gly Asp Ser Ser Leu | | | | |
| 815 | 820 | 825 | | |
| acc aac aca gca cca aca gct tcc aag ata gta aca gac tcc aat tcc | 2609 | | | |
| Thr Asn Thr Ala Pro Thr Ala Ser Lys Ile Val Thr Asp Ser Asn Ser | | | | |
| 830 | 835 | 840 | | |
| agg gtt tca gaa ccg cat cgc agc atc ttt cct gaa atg cac tca gac | 2657 | | | |
| Arg Val Ser Glu Pro His Arg Ser Ile Phe Pro Glu Met His Ser Asp | | | | |
| 845 | 850 | 855 | | |
| tca gcc agc aaa gac gtg cct ggc cgc atc ctg ctg gat ata gac aat | 2705 | | | |
| Ser Ala Ser Lys Asp Val Pro Gly Arg Ile Leu Leu Asp Ile Asp Asn | | | | |
| 860 | 865 | 870 | | |
| gat acc gag agc act gcc ctg tgaagaaagc cctttcccag ccctccacca | 2756 | | | |
| Asp Thr Glu Ser Thr Ala Leu | | | | |
| 875 | 880 | | | |
| cttccaccct ggcgagtgga gcagggggcag gcgaacctct ttctttgcag accgaacagt | 2816 | | | |
| gaaaagcttt cagtggagga caaaggaggg cctcactgtg cgggacctgg ccttctgcac | 2876 | | | |
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| agtggagaga gtattcctgc tgaaacgcgc ataggaagct tttgtccctg ctgttaatgc | 3056 | | | |
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PH-1064PCT-US seq.TXT

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<211> 881

<212> PRT

<213> Homo sapiens

<400> 146

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| 1 | | | | 5 | | | | | | 10 | | | | | 15 |
| Gly | Arg | Ala | Glu | Lys | Thr | Glu | Val | Leu | Ser | Glu | Asp | Leu | Leu | Gln | Ile |
| | | | | 20 | | | | | | 25 | | | | | 30 |
| Glu | Arg | Arg | Leu | Asp | Thr | Val | Arg | Ser | Ile | Cys | His | His | Ser | His | Lys |
| | | | | 35 | | | | | | 40 | | | | | 45 |
| Arg | Leu | Val | Ala | Cys | Phe | Gln | Gly | Gln | His | Gly | Thr | Asp | Ala | Glu | Arg |
| | | | | 50 | | | | | | 55 | | | | | 60 |
| Arg | His | Lys | Lys | Leu | Pro | Leu | Thr | Ala | Leu | Ala | Gln | Asn | Met | Gln | Glu |
| | | | | 65 | | | | | | 70 | | | | | 75 |
| Ala | Ser | Thr | Gln | Leu | Glu | Asp | Ser | Leu | Leu | Gly | Lys | Met | Leu | Glu | Thr |
| | | | | 85 | | | | | | 90 | | | | | 95 |
| Cys | Gly | Asp | Ala | Glu | Asn | Gln | Leu | Ala | Leu | Glu | Leu | Ser | Gln | His | Glu |
| | | | | 100 | | | | | | 105 | | | | | 110 |
| Val | Phe | Val | Glu | Lys | Glu | Ile | Val | Asp | Pro | Leu | Tyr | Gly | Ile | Ala | Glu |

PH-1064PCT-US seq.TXT

| | | |
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| Val Leu Asp Trp Asp Ser Val Arg Ala Arg Trp Asn Gln Ala His Lys | | |
| 145 | 150 | 155 |
| Ser Ser Gly Thr Asn Phe Gln Gly Leu Pro Ser Lys Ile Asp Thr Leu | | |
| 165 | 170 | 175 |
| Lys Glu Glu Met Asp Glu Ala Gly Asn Lys Val Glu Gln Cys Lys Asp | | |
| 180 | 185 | 190 |
| Gln Leu Ala Ala Asp Met Tyr Asn Phe Met Ala Lys Glu Gly Glu Tyr | | |
| 195 | 200 | 205 |
| Gly Lys Phe Phe Val Thr Leu Leu Glu Ala Gln Ala Asp Tyr His Arg | | |
| 210 | 215 | 220 |
| Lys Ala Leu Ala Val Leu Glu Lys Thr Leu Pro Glu Met Arg Ala His | | |
| 225 | 230 | 235 |
| Gln Asp Lys Trp Ala Glu Lys Pro Ala Phe Gly Thr Pro Leu Glu Glu | | |
| 245 | 250 | 255 |
| His Leu Lys Arg Ser Gly Arg Glu Ile Ala Leu Pro Ile Glu Ala Cys | | |
| 260 | 265 | 270 |
| Val Met Leu Leu Leu Glu Thr Gly Met Lys Glu Glu Gly Leu Phe Arg | | |
| 275 | 280 | 285 |
| Ile Gly Ala Gly Ala Ser Lys Leu Lys Lys Leu Lys Ala Ala Leu Asp | | |
| 290 | 295 | 300 |
| Cys Ser Thr Ser His Leu Asp Glu Phe Tyr Ser Asp Pro His Ala Val | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
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| Ala | Gly | Ala | Leu | Lys | Ser | Tyr | Leu | Arg | Glu | Leu | Pro | Glu | Pro | Leu | Met |
| | | 325 | | 330 | | 335 | | | | | | | | | |
| Thr | Phe | Asn | Leu | Tyr | Glu | Glu | Trp | Thr | Gln | Val | Ala | Ser | Val | Gln | Asp |
| | | 340 | | 345 | | 350 | | | | | | | | | |
| Gln | Asp | Lys | Lys | Leu | Gln | Asp | Leu | Trp | Arg | Thr | Cys | Gln | Lys | Leu | Pro |
| | | 355 | | 360 | | 365 | | | | | | | | | |
| Pro | Gln | Asn | Phe | Val | Asn | Phe | Arg | Tyr | Leu | Ile | Lys | Phe | Leu | Ala | Lys |
| | | 370 | | 375 | | 380 | | | | | | | | | |
| Leu | Ala | Gln | Thr | Ser | Asp | Val | Asn | Lys | Met | Thr | Pro | Ser | Asn | Ile | Ala |
| 385 | | 390 | | 395 | | 400 | | | | | | | | | |
| Ile | Val | Leu | Gly | Pro | Asn | Leu | Leu | Trp | Ala | Arg | Asn | Glu | Gly | Thr | Leu |
| | | 405 | | 410 | | 415 | | | | | | | | | |
| Ala | Glu | Met | Ala | Ala | Ala | Thr | Ser | Val | His | Val | Val | Ala | Val | Ile | Glu |
| | | 420 | | 425 | | 430 | | | | | | | | | |
| Pro | Ile | Ile | Gln | His | Ala | Asp | Trp | Phe | Phe | Pro | Glu | Glu | Val | Glu | Phe |
| | | 435 | | 440 | | 445 | | | | | | | | | |
| Asn | Val | Ser | Glu | Ala | Phe | Val | Pro | Leu | Thr | Thr | Pro | Ser | Ser | Asn | His |
| | | 450 | | 455 | | 460 | | | | | | | | | |
| Ser | Phe | His | Thr | Gly | Asn | Asp | Ser | Asp | Ser | Gly | Thr | Leu | Glu | Arg | Lys |
| 465 | | 470 | | 475 | | 480 | | | | | | | | | |
| Arg | Pro | Ala | Ser | Met | Ala | Val | Met | Glu | Gly | Asp | Leu | Val | Lys | Lys | Glu |
| | | 485 | | 490 | | 495 | | | | | | | | | |
| Ser | Phe | Gly | Val | Lys | Leu | Met | Asp | Phe | Gln | Ala | His | Arg | Arg | Gly | Gly |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 500 | 505 | 510 |
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| 515 | 520 | 525 |
| Pro Thr Asp Gly Ser Thr Val Val Pro Ala Gly Pro Glu Pro Pro Pro | | |
| 530 | 535 | 540 |
| Gln Ser Ser Arg Ala Glu Ser Ser Ser Gly Gly Gly Thr Val Pro Ser | | |
| 545 | 550 | 555 |
| Ser Ala Gly Ile Leu Glu Gln Gly Pro Ser Pro Gly Asp Gly Ser Pro | | |
| 565 | 570 | 575 |
| Pro Lys Pro Lys Asp Pro Val Ser Ala Ala Val Pro Ala Pro Gly Arg | | |
| 580 | 585 | 590 |
| Asn Asn Ser Gln Ile Ala Ser Gly Gln Asn Gln Pro Gln Ala Ala Ala | | |
| 595 | 600 | 605 |
| Gly Ser His Gln Leu Ser Met Gly Gln Pro His Asn Ala Ala Gly Pro | | |
| 610 | 615 | 620 |
| Ser Pro His Thr Leu Arg Arg Ala Val Lys Lys Pro Ala Pro Ala Pro | | |
| 625 | 630 | 635 |
| Pro Lys Pro Gly Asn Pro Pro Pro Gly His Pro Gly Gly Gln Ser Ser | | |
| 645 | 650 | 655 |
| Ser Gly Thr Ser Gln His Pro Pro Ser Leu Ser Pro Lys Pro Pro Thr | | |
| 660 | 665 | 670 |
| Arg Ser Pro Ser Pro Pro Thr Gln His Thr Gly Gln Pro Pro Gly Gln | | |
| 675 | 680 | 685 |
| Pro Ser Ala Pro Ser Gln Leu Ser Ala Pro Arg Arg Tyr Ser Ser Ser | | |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 690 | 695 | 700 |
| Leu Ser Pro Ile Gln Ala Pro Asn His Pro Pro Pro Gln Pro Pro Thr | | |
| 705 | 710 | 715 |
| Gln Ala Thr Pro Leu Met His Thr Lys Pro Asn Ser Gln Gly Pro Pro | | |
| | 725 | 730 |
| Asn Pro Met Ala Leu Pro Ser Glu His Gly Leu Glu Gln Pro Ser His | | |
| | 740 | 745 |
| Thr Pro Pro Gln Thr Pro Thr Pro Pro Ser Thr Pro Pro Leu Gly Lys | | |
| | 755 | 760 |
| Gln Asn Pro Ser Leu Pro Ala Pro Gln Thr Leu Ala Gly Gly Asn Pro | | |
| | 770 | 775 |
| Glu Thr Ala Gln Pro His Ala Gly Thr Leu Pro Arg Pro Arg Pro Val | | |
| 785 | 790 | 795 |
| Pro Lys Pro Arg Asn Arg Pro Ser Val Pro Pro Pro Pro Gln Pro Pro | | |
| | 805 | 810 |
| Gly Val His Ser Ala Gly Asp Ser Ser Leu Thr Asn Thr Ala Pro Thr | | |
| | 820 | 825 |
| Ala Ser Lys Ile Val Thr Asp Ser Asn Ser Arg Val Ser Glu Pro His | | |
| | 835 | 840 |
| Arg Ser Ile Phe Pro Glu Met His Ser Asp Ser Ala Ser Lys Asp Val | | |
| | 850 | 855 |
| Pro Gly Arg Ile Leu Leu Asp Ile Asp Asn Asp Thr Glu Ser Thr Ala | | |
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| Leu | | |

PH-1064PCT-US seq.TXT

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Leu Val Ser Thr Cys Val Ala Phe Ser Leu Val Ala Ser Val Gly Ala
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PH-1064PCT-US seq.TXT

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| 60 | | | | | 65 | | | | | 70 | | | | | 75 | |
| ttc | tcc | gtg | acc | ctg | atc | atc | ctc | atc | gtg | gag | ctg | tgc | ggg | ctc | cag | 412 |
| Phe | Ser | Val | Thr | Leu | Ile | Ile | Leu | Ile | Val | Glu | Leu | Cys | Gly | Leu | Gln | |
| | | | | 80 | | | | | 85 | | | | | 90 | | |
| gcc | cgc | ttc | ccc | ctg | tct | tgg | cgc | aac | ttc | ccc | atc | acc | ttc | gcc | tgc | 460 |
| Ala | Arg | Phe | Pro | Leu | Ser | Trp | Arg | Asn | Phe | Pro | Ile | Thr | Phe | Ala | Cys | |
| | | | 95 | | | | | 100 | | | | | 105 | | | |
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| | 125 | | | | | 130 | | | | | 135 | | | | | |
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| gcc | tgg | acc | cgg | gcc | cgg | ccc | ggc | gag | atc | act | ggc | tat | atg | gcc | acc | 652 |
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| gta | ccc | ggg | ctg | ctg | aag | gtg | ctg | gag | acc | ttc | gtt | gcc | tgc | atc | atc | 700 |
| Val | Pro | Gly | Leu | Leu | Lys | Val | Leu | Glu | Thr | Phe | Val | Ala | Cys | Ile | Ile | |
| | | | 175 | | | | | 180 | | | | 185 | | | | |
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PH-1064PCT-US seq.TXT

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PH-1064PCT-US seq.TXT
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PH-1064PCT-US seq.TXT

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1 5 10 15

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Thr Gln Pro Leu Gly Leu Leu Arg Leu Leu Gln Leu Val Ser Thr Cys

35 40 45

Val Ala Phe Ser Leu Val Ala Ser Val Gly Ala Trp Thr Gly Ser Met

50 55 60

Gly Asn Trp Ser Met Phe Thr Trp Cys Phe Cys Phe Ser Val Thr Leu

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 65 | | 70 | | 75 | | 80 | | | | | | | | | |
| Ile | Ile | Leu | Ile | Val | Glu | Leu | Cys | Gly | Leu | Gln | Ala | Arg | Phe | Pro | Leu |
| | | 85 | | | | 90 | | | | | | | | 95 | |
| Ser | Trp | Arg | Asn | Phe | Pro | Ile | Thr | Phe | Ala | Cys | Tyr | Ala | Gly | Leu | Phe |
| | | 100 | | | | | | 105 | | | | | | 110 | |
| Cys | Leu | Ser | Ala | Ser | Ile | Ile | Tyr | Pro | Thr | Thr | Tyr | Val | Gln | Phe | Leu |
| | | 115 | | | | | | 120 | | | | | | 125 | |
| Ser | His | Gly | Arg | Ser | Arg | Asp | His | Ala | Ile | Ala | Ala | Thr | Phe | Phe | Ser |
| | | 130 | | | | | | 135 | | | | | | 140 | |
| Cys | Ile | Ala | Cys | Val | Ala | Tyr | Ala | Thr | Glu | Val | Ala | Trp | Thr | Arg | Ala |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Arg | Pro | Gly | Glu | Ile | Thr | Gly | Tyr | Met | Ala | Thr | Val | Pro | Gly | Leu | Leu |
| | | | | | 165 | | | | | 170 | | | | | 175 |
| Lys | Val | Leu | Glu | Thr | Phe | Val | Ala | Cys | Ile | Ile | Phe | Ala | Phe | Ile | Ser |
| | | 180 | | | | | | | | 185 | | | | | 190 |
| Asp | Pro | Asn | Leu | Tyr | Gln | His | Gln | Pro | Ala | Leu | Glu | Trp | Cys | Val | Ala |
| | | 195 | | | | | | | | 200 | | | | | 205 |
| Val | Tyr | Ala | Ile | Cys | Phe | Ile | Leu | Ala | Ala | Ile | Ala | Ile | Leu | Leu | Asn |
| | | 210 | | | | | | | | 215 | | | | | 220 |
| Leu | Gly | Glu | Cys | Thr | Asn | Val | Leu | Pro | Ile | Pro | Phe | Pro | Ser | Phe | Leu |
| 225 | | | | | | 230 | | | | | | 235 | | | 240 |
| Ser | Gly | Leu | Ala | Leu | Leu | Ser | Val | Leu | Leu | Tyr | Ala | Thr | Ala | Leu | Val |
| | | | | | 245 | | | | | | | | | 250 | 255 |
| Leu | Trp | Pro | Leu | Tyr | Gln | Phe | Asp | Glu | Lys | Tyr | Gly | Gly | Gln | Pro | Arg |

PH-1064PCT-US seq.TXT

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| 275 | 280 | 285 |
| Ala Trp Asp Arg Arg Leu Ala Val Ala Ile Leu Thr Ala Ile Asn Leu | | |
| 290 | 295 | 300 |
| Leu Ala Tyr Val Ala Asp Leu Val His Ser Ala His Leu Val Phe Val | | |
| 305 | 310 | 315 |
| | | 320 |
| Lys Val | | |

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<211> 4409

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<220>

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<222> (39)..(2027)

<400> 149

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Ser Gln Gly Val Val Leu Thr Ala Tyr His Pro Ser Gly Lys Asp Gln

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15

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| | | | |
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| 25 | 30 | 35 | |
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| Arg Arg Tyr Gly Gln Tyr Thr Met Asn Gln Glu Ser Thr Thr Ile Lys | | | |
| 40 | 45 | 50 | |
| gtt atg gag aag cct cca ttt gat cga tca att tcc cag gat tct ttg | | | 248 |
| Val Met Glu Lys Pro Pro Phe Asp Arg Ser Ile Ser Gln Asp Ser Leu | | | |
| 55 | 60 | 65 | 70 |
| gat gaa cta tct atg gaa gac tat tgg ata gaa cta gaa aac atc aag | | | 296 |
| Asp Glu Leu Ser Met Glu Asp Tyr Trp Ile Glu Leu Glu Asn Ile Lys | | | |
| | 75 | 80 | 85 |
| aaa tct agt gaa aac agc caa gaa gat caa gag gtg gtt gtt gtc aaa | | | 344 |
| Lys Ser Ser Glu Asn Ser Gln Glu Asp Gln Glu Val Val Val Val Lys | | | |
| | 90 | 95 | 100 |
| gag cct gat gag gga gaa ttg gaa gaa gag tgg ctt aaa gag gcc ggt | | | 392 |
| Glu Pro Asp Glu Gly Glu Leu Glu Glu Glu Trp Leu Lys Glu Ala Gly | | | |
| 105 | 110 | 115 | |
| tta tcc aat ctc ttc gga gag tct gct gga gat cca cag gaa agc att | | | 440 |
| Leu Ser Asn Leu Phe Gly Glu Ser Ala Gly Asp Pro Gln Glu Ser Ile | | | |
| 120 | 125 | 130 | |
| gtg ttt tta tca aca ttg acg cgg acc cag gca gca gca gtt cag aag | | | 488 |
| Val Phe Leu Ser Thr Leu Thr Arg Thr Gln Ala Ala Ala Val Gln Lys | | | |
| 135 | 140 | 145 | 150 |
| cga gta gag acg gtc tcc cag acc ttg agg aaa aaa aac aaa cag tac | | | 536 |

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Val | Glu | Thr | Val | Ser | Gln | Thr | Leu | Arg | Lys | Lys | Asn | Lys | Gln | Tyr | |
| | | | | 155 | | | | 160 | | | | | | 165 | | |
| cag | att | cct | gac | gtc | aga | gac | ata | ttt | gct | caa | cag | aga | gaa | tca | aaa | 584 |
| Gln | Ile | Pro | Asp | Val | Arg | Asp | Ile | Phe | Ala | Gln | Gln | Arg | Glu | Ser | Lys | |
| | | | | 170 | | | | 175 | | | | | | 180 | | |
| gaa | aca | gct | cca | ggg | ggc | act | gaa | tcg | cag | tca | ctt | aga | aca | aat | gaa | 632 |
| Glu | Thr | Ala | Pro | Gly | Gly | Thr | Glu | Ser | Gln | Ser | Leu | Arg | Thr | Asn | Glu | |
| | | | | 185 | | | | 190 | | | | | | 195 | | |
| aac | aaa | tac | caa | gga | aga | gat | gac | gag | gca | tct | aac | ctt | ggt | ggt | gaa | 680 |
| Asn | Lys | Tyr | Gln | Gly | Arg | Asp | Asp | Glu | Ala | Ser | Asn | Leu | Val | Gly | Glu | |
| | | | | 200 | | | | 205 | | | | | | 210 | | |
| gag | aag | ctg | atc | cca | cct | gag | gag | acg | cct | gcc | cct | gaa | aca | gac | atc | 728 |
| Glu | Lys | Leu | Ile | Pro | Pro | Glu | Glu | Thr | Pro | Ala | Pro | Glu | Thr | Asp | Ile | |
| | | | | 215 | | | | 220 | | | | | | 225 | | |
| aac | ctg | gag | gta | tca | ttt | gcc | gag | caa | gca | ctc | aat | cag | aaa | gag | agc | 776 |
| Asn | Leu | Glu | Val | Ser | Phe | Ala | Glu | Gln | Ala | Leu | Asn | Gln | Lys | Glu | Ser | |
| | | | | 235 | | | | 240 | | | | | | 245 | | |
| tcc | aag | gag | aaa | atc | cag | aag | agc | aaa | ggc | gat | gat | gcc | aca | tta | cct | 824 |
| Ser | Lys | Glu | Lys | Ile | Gln | Lys | Ser | Lys | Gly | Asp | Asp | Ala | Thr | Leu | Pro | |
| | | | | 250 | | | | 255 | | | | | | 260 | | |
| agt | ttc | aga | ttg | cca | aaa | gac | aaa | acg | ggg | acc | aca | agg | att | ggg | gac | 872 |
| Ser | Phe | Arg | Leu | Pro | Lys | Asp | Lys | Thr | Gly | Thr | Thr | Arg | Ile | Gly | Asp | |
| | | | | 265 | | | | 270 | | | | | | 275 | | |
| ctc | gca | ccc | cag | gac | atg | aag | aaa | gtt | tgc | cat | tta | gcc | cta | att | gag | 920 |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Leu | Ala | Pro | Gln | Asp | Met | Lys | Lys | Val | Cys | His | Leu | Ala | Leu | Ile | Glu | | |
| 280 | | | | | | 285 | | | | | 290 | | | | | | |
| ctg | act | gcc | ctc | tat | gat | gta | ttg | ggt | att | gag | ctg | aaa | caa | caa | aaa | 968 | |
| Leu | Thr | Ala | Leu | Tyr | Asp | Val | Leu | Gly | Ile | Glu | Leu | Lys | Gln | Gln | Lys | | |
| 295 | | | | | 300 | | | | | 305 | | | | | 310 | | |
| gct | gtg | aaa | atc | aaa | aca | aaa | gat | tct | ggt | ctt | ttt | tgc | ggt | cca | ttg | 1016 | |
| Ala | Val | Lys | Ile | Lys | Thr | Lys | Asp | Ser | Gly | Leu | Phe | Cys | Val | Pro | Leu | | |
| | | | | 315 | | | | | 320 | | | | | 325 | | | |
| aca | gcg | cta | tta | gaa | caa | gat | cag | agg | aaa | gta | cca | gga | atg | cga | ata | 1064 | |
| Thr | Ala | Leu | Leu | Glu | Gln | Asp | Gln | Arg | Lys | Val | Pro | Gly | Met | Arg | Ile | | |
| | | | | 330 | | | | 335 | | | | | | 340 | | | |
| ccc | ttg | atc | ttt | caa | aaa | ctg | att | tct | cga | att | gaa | gag | aga | ggt | ttg | 1112 | |
| Pro | Leu | Ile | Phe | Gln | Lys | Leu | Ile | Ser | Arg | Ile | Glu | Glu | Arg | Gly | Leu | | |
| | | | | 345 | | | | 350 | | | | | | 355 | | | |
| gaa | aca | gaa | ggc | ctc | tta | cgg | atc | cct | gga | gct | gcc | att | aga | atc | aag | 1160 | |
| Glu | Thr | Glu | Gly | Leu | Leu | Arg | Ile | Pro | Gly | Ala | Ala | Ile | Arg | Ile | Lys | | |
| | | | | 360 | | | | 365 | | | | | | 370 | | | |
| aat | ctt | tgc | caa | gaa | cta | gaa | gca | aag | ttt | tat | gaa | ggg | act | ttt | aat | 1208 | |
| Asn | Leu | Cys | Gln | Glu | Leu | Glu | Ala | Lys | Phe | Tyr | Glu | Gly | Thr | Phe | Asn | | |
| 375 | | | | | 380 | | | | | 385 | | | | | 390 | | |
| tgg | gaa | agt | gtc | aaa | cag | cat | gat | gcc | gcc | agc | ctg | ctg | aag | ctc | ttc | 1256 | |
| Trp | Glu | Ser | Val | Lys | Gln | His | Asp | Ala | Ala | Ser | Leu | Leu | Lys | Leu | Phe | | |
| | | | | 395 | | | | 400 | | | | | | 405 | | | |
| att | cgg | gag | ttg | ccc | cag | cca | ctg | ctc | agt | gtg | gag | tat | ctc | aaa | gcc | 1304 | |

PH-1064PCT-US seq.TXT

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| Phe Gln Ala Val Gln Asn Leu Pro Thr Lys Lys Gln Gln Leu Gln Ala | | |
| 425 | 430 | 435 |
| ttg aac ctt ctt ggc atc ctc cta cct gat gca aac agg gac aca ctg | | 1400 |
| Leu Asn Leu Leu Gly Ile Leu Leu Pro Asp Ala Asn Arg Asp Thr Leu | | |
| 440 | 445 | 450 |
| aag gcc ctt ctt gaa ttt ctc caa aga gta ata gat aat aaa gaa aaa | | 1448 |
| Lys Ala Leu Leu Glu Phe Leu Gln Arg Val Ile Asp Asn Lys Glu Lys | | |
| 455 | 460 | 465 |
| aat aaa atg aca gtc atg aat gta gca atg gtc atg gcc ccg aat ctc | | 1496 |
| Asn Lys Met Thr Val Met Asn Val Ala Met Val Met Ala Pro Asn Leu | | |
| 475 | 480 | 485 |
| ttt atg tgt cat gca ttg gga ttg aag tcc agt gaa cag cga gaa ttt | | 1544 |
| Phe Met Cys His Ala Leu Gly Leu Lys Ser Ser Glu Gln Arg Glu Phe | | |
| 490 | 495 | 500 |
| gta atg gca gct ggg aca gca aat acc atg cac tta ttg att aag tac | | 1592 |
| Val Met Ala Ala Gly Thr Ala Asn Thr Met His Leu Leu Ile Lys Tyr | | |
| 505 | 510 | 515 |
| caa aaa ctt ctg tgg aca att ccc aag ttt att gta aac caa gtg agg | | 1640 |
| Gln Lys Leu Leu Trp Thr Ile Pro Lys Phe Ile Val Asn Gln Val Arg | | |
| 520 | 525 | 530 |
| aag caa aac acg gaa aat cat aaa aag gat aaa aga gcc atg aag aaa | | 1688 |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Lys | Gln | Asn | Thr | Glu | Asn | His | Lys | Lys | Asp | Lys | Arg | Ala | Met | Lys | Lys | | |
| 535 | | | | | 540 | | | | | 545 | | | | | 550 | | |
| ttg | ctg | aag | aaa | atg | gct | tat | gac | cga | gaa | aaa | tat | gaa | aag | caa | gat | 1736 | |
| Leu | Leu | Lys | Lys | Met | Ala | Tyr | Asp | Arg | Glu | Lys | Tyr | Glu | Lys | Gln | Asp | | |
| | | | | 555 | | | | | 560 | | | | | 565 | | | |
| aag | agt | aca | aat | gat | gct | gac | gtt | cct | cag | gga | gtg | att | cga | gtg | caa | 1784 | |
| Lys | Ser | Thr | Asn | Asp | Ala | Asp | Val | Pro | Gln | Gly | Val | Ile | Arg | Val | Gln | | |
| | | | 570 | | | | | | 575 | | | | | 580 | | | |
| gct | ccc | cat | ctt | tcg | aaa | gtt | tcc | atg | gca | ata | cag | cta | act | gaa | gaa | 1832 | |
| Ala | Pro | His | Leu | Ser | Lys | Val | Ser | Met | Ala | Ile | Gln | Leu | Thr | Glu | Glu | | |
| | | | 585 | | | | | | 590 | | | | | 595 | | | |
| cta | aaa | gcc | agt | gat | gta | ctt | gcc | agg | ttt | ctc | agc | caa | gaa | agt | ggg | 1880 | |
| Leu | Lys | Ala | Ser | Asp | Val | Leu | Ala | Arg | Phe | Leu | Ser | Gln | Glu | Ser | Gly | | |
| | | | 600 | | | | | | 605 | | | | | 610 | | | |
| gtt | gcc | cag | act | ctc | aag | aaa | gga | gaa | gtt | ttt | ttg | tat | gaa | att | gga | 1928 | |
| Val | Ala | Gln | Thr | Leu | Lys | Lys | Gly | Glu | Val | Phe | Leu | Tyr | Glu | Ile | Gly | | |
| 615 | | | | | 620 | | | | | 625 | | | | 630 | | | |
| gga | aat | att | ggg | gaa | cgc | tgc | ctt | gat | gat | gac | act | tac | atg | aag | gat | 1976 | |
| Gly | Asn | Ile | Gly | Glu | Arg | Cys | Leu | Asp | Asp | Asp | Thr | Tyr | Met | Lys | Asp | | |
| | | | | 635 | | | | | | 640 | | | | 645 | | | |
| tta | tat | cag | ctt | aac | cca | aat | gct | gag | tgg | gtt | ata | aag | tca | aag | cca | 2024 | |
| Leu | Tyr | Gln | Leu | Asn | Pro | Asn | Ala | Glu | Trp | Val | Ile | Lys | Ser | Lys | Pro | | |
| | | | | 650 | | | | | | 655 | | | | 660 | | | |
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PH-1064PCT-US seq.TXT

Leu

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15

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| 35 | 40 | 45 |
| Glu Ser Thr Thr Ile Lys Val Met Glu Lys Pro Pro Phe Asp Arg Ser | | |
| 50 | 55 | 60 |
| Ile Ser Gln Asp Ser Leu Asp Glu Leu Ser Met Glu Asp Tyr Trp Ile | | |
| 65 | 70 | 75 |
| Glu Leu Glu Asn Ile Lys Lys Ser Ser Glu Asn Ser Gln Glu Asp Gln | | |
| 85 | 90 | 95 |
| Glu Val Val Val Val Lys Glu Pro Asp Glu Gly Glu Leu Glu Glu Glu | | |
| 100 | 105 | 110 |
| Trp Leu Lys Glu Ala Gly Leu Ser Asn Leu Phe Gly Glu Ser Ala Gly | | |
| 115 | 120 | 125 |
| Asp Pro Gln Glu Ser Ile Val Phe Leu Ser Thr Leu Thr Arg Thr Gln | | |
| 130 | 135 | 140 |
| Ala Ala Ala Val Gln Lys Arg Val Glu Thr Val Ser Gln Thr Leu Arg | | |
| 145 | 150 | 155 |
| Lys Lys Asn Lys Gln Tyr Gln Ile Pro Asp Val Arg Asp Ile Phe Ala | | |
| 165 | 170 | 175 |
| Gln Gln Arg Glu Ser Lys Glu Thr Ala Pro Gly Gly Thr Glu Ser Gln | | |
| 180 | 185 | 190 |
| Ser Leu Arg Thr Asn Glu Asn Lys Tyr Gln Gly Arg Asp Asp Glu Ala | | |
| 195 | 200 | 205 |
| Ser Asn Leu Val Gly Glu Glu Lys Leu Ile Pro Pro Glu Glu Thr Pro | | |

PH-1064PCT-US seq.TXT

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 Asp Asp Ala Thr Leu Pro Ser Phe Arg Leu Pro Lys Asp Lys Thr Gly
 260 265 270
 Thr Thr Arg Ile Gly Asp Leu Ala Pro Gln Asp Met Lys Lys Val Cys
 275 280 285
 His Leu Ala Leu Ile Glu Leu Thr Ala Leu Tyr Asp Val Leu Gly Ile
 290 295 300
 Glu Leu Lys Gln Gln Lys Ala Val Lys Ile Lys Thr Lys Asp Ser Gly
 305 310 315 320
 Leu Phe Cys Val Pro Leu Thr Ala Leu Leu Glu Gln Asp Gln Arg Lys
 325 330 335
 Val Pro Gly Met Arg Ile Pro Leu Ile Phe Gln Lys Leu Ile Ser Arg
 340 345 350
 Ile Glu Glu Arg Gly Leu Glu Thr Glu Gly Leu Leu Arg Ile Pro Gly
 355 360 365
 Ala Ala Ile Arg Ile Lys Asn Leu Cys Gln Glu Leu Glu Ala Lys Phe
 370 375 380
 Tyr Glu Gly Thr Phe Asn Trp Glu Ser Val Lys Gln His Asp Ala Ala
 385 390 395 400
 Ser Leu Leu Lys Leu Phe Ile Arg Glu Leu Pro Gln Pro Leu Leu Ser

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| 435 | 440 | 445 |
| Ala Asn Arg Asp Thr Leu Lys Ala Leu Leu Glu Phe Leu Gln Arg Val | | |
| 450 | 455 | 460 |
| Ile Asp Asn Lys Glu Lys Asn Lys Met Thr Val Met Asn Val Ala Met | | |
| 465 | 470 | 475 |
| Val Met Ala Pro Asn Leu Phe Met Cys His Ala Leu Gly Leu Lys Ser | | |
| 485 | 490 | 495 |
| Ser Glu Gln Arg Glu Phe Val Met Ala Ala Gly Thr Ala Asn Thr Met | | |
| 500 | 505 | 510 |
| His Leu Leu Ile Lys Tyr Gln Lys Leu Leu Trp Thr Ile Pro Lys Phe | | |
| 515 | 520 | 525 |
| Ile Val Asn Gln Val Arg Lys Gln Asn Thr Glu Asn His Lys Lys Asp | | |
| 530 | 535 | 540 |
| Lys Arg Ala Met Lys Lys Leu Leu Lys Lys Met Ala Tyr Asp Arg Glu | | |
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| Lys Tyr Glu Lys Gln Asp Lys Ser Thr Asn Asp Ala Asp Val Pro Gln | | |
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| Gly Val Ile Arg Val Gln Ala Pro His Leu Ser Lys Val Ser Met Ala | | |
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| Ile Gln Leu Thr Glu Glu Leu Lys Ala Ser Asp Val Leu Ala Arg Phe | | |

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| Phe Leu Tyr Glu Ile Gly Gly Asn Ile Gly Glu Arg Cys Leu Asp Asp | | |
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| aac tca aca ctg agt gac agc ggt atg att gat aat ctt cca gac agc | 95 |
| Asn Ser Thr Leu Ser Asp Ser Gly Met Ile Asp Asn Leu Pro Asp Ser | |
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| gac aaa aaa gta cca ggc aga atg tac agt aat aac cct ttc tgg aat | 191 |
| Asp Lys Lys Val Pro Gly Arg Met Tyr Ser Asn Asn Pro Phe Trp Asn | |
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| ggg gtc cag acc aat cca ttt ctg aat ggg aac gtg ccc gtc atg ccc | 239 |
| Gly Val Gln Thr Asn Pro Phe Leu Asn Gly Asn Val Pro Val Met Pro | |
| 65 70 75 | |
| agc ctg gat gag ctg aat ccc aaa agt act gtg gat ttg ctc ctt ttt | 287 |
| Ser Leu Asp Glu Leu Asn Pro Lys Ser Thr Val Asp Leu Leu Leu Phe | |
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| gac gca ggt aca tcc tcc ttc acc gaa tcc agc tca gcc acc acg aat | 335 |
| Asp Ala Gly Thr Ser Ser Phe Thr Glu Ser Ser Ser Ala Thr Thr Asn | |
| 100 105 110 | |
| agc act ggc aac atc ttc gat gag ctt cca gtc aca aac ggg ctc cac | 383 |
| Ser Thr Gly Asn Ile Phe Asp Glu Leu Pro Val Thr Asn Gly Leu His | |
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| gca gag ccg ccg gtc agg cgg gac aac ccc ttc ttc aga agc aag cgc | 431 |
| Ala Glu Pro Pro Val Arg Arg Asp Asn Pro Phe Phe Arg Ser Lys Arg | |
| 130 135 140 | |
| tcc tac agt ctc tcg gaa ctc tcc gtc ctc caa gcc aag tcc gac gct | 479 |
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Lys Leu Ala Arg Ser Cys His Asp Leu Asp Leu Leu Gly Gln Ser Pro
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His Val Pro Glu Gly His Val Ala Pro Gly Glu Thr Gln Gln Ile Ser
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Met Lys Ala Leu Leu Asp Pro Pro Leu Glu Leu Asn Ser Asp Arg Ser
          260          265          270
tgc agc atc agc cct gtg ctg gag gtc aag ctg agc aac ctg gag gtg 863
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| gac ctt ttt agc aaa agc aca gtg ggc ctc cag tgc ctg agg agc gac | 959 |
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| 305 310 315 | |
| tcg aag gaa ggg cca tat gtc tcc gtc ccg ctc aac tgc agc tgt ggg | 1007 |
| Ser Lys Glu Gly Pro Tyr Val Ser Val Pro Leu Asn Cys Ser Cys Gly | |
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| gac acg gtc cag gca cag ctg cac aac ctg gag ccc tgt atg tac gtg | 1055 |
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| gct gtc gtg gcc cat ggc cca agc atc ctc tac cct tcc acc gtg tgg | 1103 |
| Ala Val Val Ala His Gly Pro Ser Ile Leu Tyr Pro Ser Thr Val Trp | |
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| gac ttc atc aat aaa aaa gtc aca gtg ggt ctc tac ggc cct aaa cac | 1151 |
| Asp Phe Ile Asn Lys Lys Val Thr Val Gly Leu Tyr Gly Pro Lys His | |
| 370 375 380 | |
| atc cac cca tcc ttc aag acg gta gtg acc att ttt ggg cat gac tgt | 1199 |
| Ile His Pro Ser Phe Lys Thr Val Val Thr Ile Phe Gly His Asp Cys | |
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| gcc cca aag acg ctc ctg gtc agc gag gtc aca cgc cag gca ccc aac | 1247 |
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| tcc agg ccc cag gat ctc aag gtc tgt atg ttt tcc aat atg acg aat | 1343 |
| Ser Arg Pro Gln Asp Leu Lys Val Cys Met Phe Ser Asn Met Thr Asn | |
| 435 440 445 | |
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| ctg aag ctg ggc aag gtg agc cgc ctg atc ttc ccc atc acc tcc cag | 1439 |
| Leu Lys Leu Gly Lys Val Ser Arg Leu Ile Phe Pro Ile Thr Ser Gln | |
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| aac ccc aac gag ctc tct gac ttc acg ctg cgg gtt cag gtg aag gac | 1487 |
| Asn Pro Asn Glu Leu Ser Asp Phe Thr Leu Arg Val Gln Val Lys Asp | |
| 480 485 490 495 | |
| gac cag gag gcc atc ctc acc cag ttt tgt gtc cag act cct cag cca | 1535 |
| Asp Gln Glu Ala Ile Leu Thr Gln Phe Cys Val Gln Thr Pro Gln Pro | |
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| ccc cct aaa agt gcc atc aag cct tcc ggg caa agg agg ttt ctc aag | 1583 |
| Pro Pro Lys Ser Ala Ile Lys Pro Ser Gly Gln Arg Arg Phe Leu Lys | |
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| aag ttg ctc aag act gtg gtg cgg cag aac aag aac cac tac ctg ctg | 1727 |
| Lys Leu Leu Lys Thr Val Val Arg Gln Asn Lys Asn His Tyr Leu Leu | |
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| Glu Tyr Lys Lys Gly Asp Gly Ile Ala Leu Leu Ser Glu Glu Arg Val | |
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| agg gcc cgg ccc agc ctg tgc tgc ggc ccc gag ctg agc acc tcg gtg | 1919 |
| Arg Ala Arg Pro Ser Leu Cys Ser Gly Pro Glu Leu Ser Thr Ser Val | |
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| ctg ctg gag cag atc ctg cgg ccc tgc aaa ttc ctc acg tac atc tat | 1967 |
| Leu Leu Glu Gln Ile Leu Arg Pro Cys Lys Phe Leu Thr Tyr Ile Tyr | |
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| Arg Ala Glu Leu Asp Ser Glu Pro Glu Arg Val Ala Ser Val Leu Glu | |
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| aag ctg aag gag gac tgt aac aac act gag aac aaa gaa cgg aag tcc | 2159 |
| Lys Leu Lys Glu Asp Cys Asn Asn Thr Glu Asn Lys Glu Arg Lys Ser | |
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| ttc cag aag gag ctt gtg atg gcc cta ctg aag atg gac tgc cag ggc | 2207 |
| Phe Gln Lys Glu Leu Val Met Ala Leu Leu Lys Met Asp Cys Gln Gly | |
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| ctg gtg gtc aga ctc atc cag gac ttt gtg ctc ctg acc acg gct gta | 2255 |
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| gag gtg gcc cag cgc tgg cgg gag ctg gct gag aag ctg gcc aag gtc | 2303 |
| Glu Val Ala Gln Arg Trp Arg Glu Leu Ala Glu Lys Leu Ala Lys Val | |
| 755 760 765 | |
| tcc aag cag cag atg gac gcc tac gag tct ccc cac cgg gac agg aac | 2351 |
| Ser Lys Gln Gln Met Asp Ala Tyr Glu Ser Pro His Arg Asp Arg Asn | |
| 770 775 780 | |
| ggg gtt gtg gac agc gag gcc atg tgg aag cct gcg tat gac ttc tta | 2399 |
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 gag ctg cac ctg ggc ctg gac aag atg aaa aac ccc atc acc aag cgc 2495
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 820 825 830
 tgg aag cac ctc act ggg act ctg atc ttg gtg aac tcc ctg gac gtt 2543
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<400> 152

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| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
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| Asp | Glu | Val | Ala | Lys | Glu | Leu | Glu | Leu | Leu | Gly | Gly | Trp | Thr | Asp | Asp |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Lys | Lys | Val | Pro | Gly | Arg | Met | Tyr | Ser | Asn | Asn | Pro | Phe | Trp | Asn | Gly |
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| Thr | Gly | Asn | Ile | Phe | Asp | Glu | Leu | Pro | Val | Thr | Asn | Gly | Leu | His | Ala |
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| Glu | Pro | Pro | Val | Arg | Arg | Asp | Asn | Pro | Phe | Phe | Arg | Ser | Lys | Arg | Ser |
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| Tyr | Ser | Leu | Ser | Glu | Leu | Ser | Val | Leu | Gln | Ala | Lys | Ser | Asp | Ala | Pro |
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| Trp Gly Gln Thr Gln Ala Val Glu Thr Asn Ile Val Cys Lys Leu Asp | | |
| 210 | 215 | 220 |
| Ser Ser Gly Gly Ala Val Gln Leu Pro Asp Thr Ser Ile Ser Ile His | | |
| 225 | 230 | 235 |
| Val Pro Glu Gly His Val Ala Pro Gly Glu Thr Gln Gln Ile Ser Met | | |
| 245 | 250 | 255 |
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| Ser Ile Ser Pro Val Leu Glu Val Lys Leu Ser Asn Leu Glu Val Lys | | |
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| Thr Ser Ile Ile Leu Glu Met Lys Val Ser Ala Glu Ile Lys Asn Asp | | |
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| Leu Phe Ser Lys Ser Thr Val Gly Leu Gln Cys Leu Arg Ser Asp Ser | | |
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| Lys Glu Gly Pro Tyr Val Ser Val Pro Leu Asn Cys Ser Cys Gly Asp | | |
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| Thr Val Gln Ala Gln Leu His Asn Leu Glu Pro Cys Met Tyr Val Ala | | |
| 340 | 345 | 350 |
| Val Val Ala His Gly Pro Ser Ile Leu Tyr Pro Ser Thr Val Trp Asp | | |
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| | 405 | 410 | 415 |
| Ala Pro Val Ala Leu Gln Leu Trp Gly Lys His Gln Phe Val Leu Ser | | | |
| | 420 | 425 | 430 |
| Arg Pro Gln Asp Leu Lys Val Cys Met Phe Ser Asn Met Thr Asn Tyr | | | |
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| Glu Val Lys Ala Ser Glu Gln Ala Lys Val Val Arg Gly Phe Gln Leu | | | |
| | 450 | 455 | 460 |
| Lys Leu Gly Lys Val Ser Arg Leu Ile Phe Pro Ile Thr Ser Gln Asn | | | |
| 465 | 470 | 475 | 480 |
| Pro Asn Glu Leu Ser Asp Phe Thr Leu Arg Val Gln Val Lys Asp Asp | | | |
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| Gln Glu Ala Ile Leu Thr Gln Phe Cys Val Gln Thr Pro Gln Pro Pro | | | |
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| Pro Lys Ser Ala Ile Lys Pro Ser Gly Gln Arg Arg Phe Leu Lys Lys | | | |
| | 515 | 520 | 525 |
| Asn Glu Val Gly Lys Ile Ile Leu Ser Pro Phe Ala Thr Thr Thr Lys | | | |
| | 530 | 535 | 540 |
| Tyr Pro Thr Phe Gln Asp Arg Pro Val Ser Ser Leu Lys Phe Gly Lys | | | |
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| 595 | 600 | 605 |
| Gly Arg Val Gly Leu Val His Thr Lys Asn Val Leu Val Val Gly Arg | | |
| 610 | 615 | 620 |
| Ala Arg Pro Ser Leu Cys Ser Gly Pro Glu Leu Ser Thr Ser Val Leu | | |
| 625 | 630 | 635 |
| Leu Glu Gln Ile Leu Arg Pro Cys Lys Phe Leu Thr Tyr Ile Tyr Ala | | |
| 645 | 650 | 655 |
| Ser Val Arg Thr Leu Leu Met Glu Asn Ile Ser Ser Trp Arg Ser Phe | | |
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| Ala Asp Ala Leu Gly Tyr Val Asn Leu Pro Leu Thr Phe Phe Cys Arg | | |
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| Ala Glu Leu Asp Ser Glu Pro Glu Arg Val Ala Ser Val Leu Glu Lys | | |
| 690 | 695 | 700 |
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| 705 | 710 | 715 |
| Gln Lys Glu Leu Val Met Ala Leu Leu Lys Met Asp Cys Gln Gly Leu | | |
| 725 | 730 | 735 |
| Val Val Arg Leu Ile Gln Asp Phe Val Leu Leu Thr Thr Ala Val Glu | | |
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PH-1064PCT-US seq.TXT

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| Val Val Asp Ser Glu Ala Met Trp Lys Pro Ala Tyr Asp Phe Leu Leu | | |
| 785 | 790 | 795 |
| Thr Trp Ser His Gln Ile Gly Asp Ser Tyr Arg Asp Val Ile Gln Glu | | |
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| Leu His Leu Gly Leu Asp Lys Met Lys Asn Pro Ile Thr Lys Arg Trp | | |
| | 820 | 825 |
| Lys His Leu Thr Gly Thr Leu Ile Leu Val Asn Ser Leu Asp Val Leu | | |
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Phe Ser Phe Leu Leu Leu Val Leu Leu Leu Val Thr Arg Ser Pro Val

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aat gcc tgc ctc ctc acc ggc agc ctc ttc gtt cta ctg cgc gtc ttc 267

Asn Ala Cys Leu Leu Thr Gly Ser Leu Phe Val Leu Leu Arg Val Phe

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Ser Phe Glu Pro Val Pro Ser Cys Arg Ala Leu Gln Val Leu Lys Pro

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Arg Asp Arg Ile Ser Ala Ile Ala His Arg Gly Gly Ser His Asp Ala

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ccc gag aac acg ctg gcg gcc att cgg cag gca gct aag aat gga gca 411

Pro Glu Asn Thr Leu Ala Ala Ile Arg Gln Ala Ala Lys Asn Gly Ala

80 85 90

aca ggc gtg gag ttg gac att gag ttt act tct gac ggg att cct gtc 459

Thr Gly Val Glu Leu Asp Ile Glu Phe Thr Ser Asp Gly Ile Pro Val

95 100 105

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agg gaa gct gtt gca gag tgc cta aac cat aac ctc aca atc ttc ttt 651
Arg Glu Ala Val Ala Glu Cys Leu Asn His Asn Leu Thr Ile Phe Phe
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Asp Val Lys Gly His Ala His Lys Ala Thr Glu Ala Leu Lys Lys Met
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 Asn Thr Phe Asp Glu Lys Ser Tyr Tyr Glu Ser His Leu Gly Ser Ser
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 Tyr Ile Thr Asp Ser Met Val Glu Asp Cys Glu Pro His Phe
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| Leu | Leu | Leu | Val | Leu | Leu | Leu | Val | Thr | Arg | Ser | Pro | Val | Asn | Ala | Cys |
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| Ile | Ser | Ala | Ile | Ala | His | Arg | Gly | Gly | Ser | His | Asp | Ala | Pro | Glu | Asn |
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| Glu | Leu | Asp | Ile | Glu | Phe | Thr | Ser | Asp | Gly | Ile | Pro | Val | Leu | Met | His |
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| Asp | Asn | Thr | Val | Asp | Arg | Thr | Thr | Asp | Gly | Thr | Gly | Arg | Leu | Cys | Asp |
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| Leu | Thr | Phe | Glu | Gln | Ile | Arg | Lys | Leu | Asn | Pro | Ala | Ala | Asn | His | Arg |
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| Val | Ala | Glu | Cys | Leu | Asn | His | Asn | Leu | Thr | Ile | Phe | Phe | Asp | Val | Lys |
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| Gly | His | Ala | His | Lys | Ala | Thr | Glu | Ala | Leu | Lys | Lys | Met | Tyr | Met | Glu |
| | | | | | | | | | 180 | | | | | 185 | |
| Phe | Pro | Gln | Leu | Tyr | Asn | Asn | Ser | Val | Val | Cys | Ser | Phe | Leu | Pro | Glu |
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| Val | Ile | Tyr | Lys | Met | Arg | Gln | Thr | Asp | Arg | Asp | Val | Ile | Thr | Ala | Leu |
| | | | | | | | | | 210 | | | | | 215 | |
| Thr | His | Arg | Pro | Trp | Ser | Leu | Ser | His | Thr | Gly | Asp | Gly | Lys | Pro | Arg |
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His Ser Phe Glu Leu Asp Glu Lys Ala Leu Ala Ser Ile Leu Leu Gln
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Phe Arg Lys Gly Lys Ser Phe Ile Leu Asp Phe Met Leu Arg Tyr Leu
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Ser Gln Ser Thr Val Lys Asp Cys Ala Thr Ile Phe Ala Leu Ser Thr
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Met Thr Ser Ser Val Gln Ile Tyr Asn Leu Ser Gln Asn Ile Gln Glu
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Thr Cys Phe Leu Leu Pro His Pro Gly Leu Gln Val Ala Thr Ser Pro
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Asp Phe Asp Gly Lys Leu Lys Asp Ile Ala Gly Glu Phe Lys Glu Gln
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Leu Gln Ala Leu Ile Pro Tyr Val Leu Asn Pro Ser Lys Leu Met Glu
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Lys Glu Ile Asn Gly Ser Lys Val Thr Cys Arg Gly Leu Leu Glu Tyr
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Phe Lys Ala Tyr Ile Lys Ile Tyr Gln Gly Glu Asp Leu Pro His Pro
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| Ala Ser Ala Lys Asp Ile Tyr Tyr Asn Asn Met Glu Glu Val Cys Gly | | | |
| 360 | 365 | 370 | |
| gga gag aaa cct tat ttg tct cca gac att cta gag gag aag cac tgt | 1207 | | |
| Gly Glu Lys Pro Tyr Leu Ser Pro Asp Ile Leu Glu Glu Lys His Cys | | | |
| 375 | 380 | 385 | |
| gaa ttc aaa caa ctt gct ctg gac cat ttt aag aag acc aag aag atg | 1255 | | |
| Glu Phe Lys Gln Leu Ala Leu Asp His Phe Lys Lys Thr Lys Lys Met | | | |
| 390 | 395 | 400 | |
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| Gly Gly Lys Asp Phe Ser Phe Arg Tyr Gln Gln Glu Leu Glu Glu Glu | | | |
| 405 | 410 | 415 | 420 |
| atc aag gaa tta tat gag aac ttc tgc aag cac aat ggt agc aag aac | 1351 | | |
| Ile Lys Glu Leu Tyr Glu Asn Phe Cys Lys His Asn Gly Ser Lys Asn | | | |
| 425 | 430 | 435 | |
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| Val Phe Ser Thr Phe Arg Thr Pro Ala Val Leu Phe Thr Gly Ile Val | | | |
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| Ala | Leu | Tyr | Ile | Ala | Ser | Gly | Leu | Thr | Gly | Phe | Ile | Gly | Leu | Glu | Val | | |
| | 455 | | | | | | 460 | | | | | | 465 | | | | |
| gta | gcc | cag | ttg | ttc | aac | tgt | atg | ggt | gga | cta | ctg | tta | ata | gca | ctc | 1495 | |
| Val | Ala | Gln | Leu | Phe | Asn | Cys | Met | Val | Gly | Leu | Leu | Leu | Ile | Ala | Leu | | |
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| 485 | | | | | | 490 | | | | | | | 495 | | 500 | | |
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| Gly | Ala | Ile | Asp | Phe | Gly | Ala | Ala | Tyr | Val | Leu | Glu | Gln | Ala | Ser | Ser | | |
| | | | 505 | | | | | | 510 | | | | | 515 | | | |
| cat | atc | ggt | aat | tcc | act | cag | gcc | act | gtg | agg | gat | gca | ggt | ggt | gga | 1639 | |
| His | Ile | Gly | Asn | Ser | Thr | Gln | Ala | Thr | Val | Arg | Asp | Ala | Val | Val | Gly | | |
| | | 520 | | | | | | 525 | | | | | | 530 | | | |
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| Val | Ala | Gly | Ala | Phe | Arg | Lys | Gly | Lys | Ser | Phe | Ile | Leu | Asp | Phe | Met |
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| Leu | Arg | Tyr | Leu | Tyr | Ser | Gln | Lys | Glu | Ser | Gly | His | Ser | Asn | Trp | Leu |
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| | | 180 | | | | | | 185 | | | | 190 | | | |
| Gly | Arg | Leu | Ala | Met | Asp | Glu | Ile | Phe | Gln | Lys | Pro | Phe | Gln | Thr | Leu |
| | | 195 | | | | | | 200 | | | | 205 | | | |
| Met | Phe | Leu | Val | Arg | Asp | Trp | Ser | Phe | Pro | Tyr | Glu | Tyr | Ser | Tyr | Gly |
| | 210 | | | | | | 215 | | | | | 220 | | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Gln | Gly | Gly | Met | Ala | Phe | Leu | Asp | Lys | Arg | Leu | Gln | Val | Lys | Glu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| His | Gln | His | Glu | Glu | Ile | Gln | Asn | Val | Arg | Asn | His | Ile | His | Ser | Cys |
| | | | | 245 | | | | | | 250 | | | | | 255 |
| Phe | Ser | Asp | Val | Thr | Cys | Phe | Leu | Leu | Pro | His | Pro | Gly | Leu | Gln | Val |
| | | | 260 | | | | | | | 265 | | | | | 270 |
| Ala | Thr | Ser | Pro | Asp | Phe | Asp | Gly | Lys | Leu | Lys | Asp | Ile | Ala | Gly | Glu |
| | | | 275 | | | | | | | 280 | | | | | 285 |
| Phe | Lys | Glu | Gln | Leu | Gln | Ala | Leu | Ile | Pro | Tyr | Val | Leu | Asn | Pro | Ser |
| | | | 290 | | | | | | | 295 | | | | | 300 |
| Lys | Leu | Met | Glu | Lys | Glu | Ile | Asn | Gly | Ser | Lys | Val | Thr | Cys | Arg | Gly |
| 305 | | | | | | | | | | | | | | | 320 |
| Leu | Leu | Glu | Tyr | Phe | Lys | Ala | Tyr | Ile | Lys | Ile | Tyr | Gln | Gly | Glu | Asp |
| | | | | | | | | | | | | | | | 335 |
| Leu | Pro | His | Pro | Lys | Ser | Met | Leu | Gln | Ala | Thr | Ala | Glu | Ala | Asn | Asn |
| | | | | | | | | | | | | | | | 350 |
| Leu | Ala | Ala | Ala | Ala | Ser | Ala | Lys | Asp | Ile | Tyr | Tyr | Asn | Asn | Met | Glu |
| | | | | | | | | | | | | | | | 365 |
| Glu | Val | Cys | Gly | Gly | Glu | Lys | Pro | Tyr | Leu | Ser | Pro | Asp | Ile | Leu | Glu |
| | | | | | | | | | | | | | | | 380 |
| Glu | Lys | His | Cys | Glu | Phe | Lys | Gln | Leu | Ala | Leu | Asp | His | Phe | Lys | Lys |
| 385 | | | | | | | | | | | | | | | 400 |
| Thr | Lys | Lys | Met | Gly | Gly | Lys | Asp | Phe | Ser | Phe | Arg | Tyr | Gln | Gln | Glu |
| | | | | | | | | | | | | | | | 415 |
| | | | | | | | | | | | | | | | 415 |

PH-1064PCT-US seq.TXT

Leu Glu Glu Glu Ile Lys Glu Leu Tyr Glu Asn Phe Cys Lys His Asn

420

425

430

Gly Ser Lys Asn Val Phe Ser Thr Phe Arg Thr Pro Ala Val Leu Phe

435

440

445

Thr Gly Ile Val Ala Leu Tyr Ile Ala Ser Gly Leu Thr Gly Phe Ile

450

455

460

Gly Leu Glu Val Val Ala Gln Leu Phe Asn Cys Met Val Gly Leu Leu

465

470

475

480

Leu Ile Ala Leu Leu Thr Trp Gly Tyr Ile Arg Tyr Ser Gly Gln Tyr

485

490

495

Arg Glu Leu Gly Gly Ala Ile Asp Phe Gly Ala Ala Tyr Val Leu Glu

500

505

510

Gln Ala Ser Ser His Ile Gly Asn Ser Thr Gln Ala Thr Val Arg Asp

515

520

525

Ala Val Val Gly Arg Pro Ser Met Asp Lys Lys Ala Gln

530

535

540

<210> 157

<211> 2172

<212> DNA

<213> Homo sapiens

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<221> CDS

<222> (45) .. (563)

<400> 157

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ccg ggc gac ccg cgg caa ccc cac cgc ccc gac ccc ggc cgc cca gtg 104

Pro Gly Asp Pro Arg Gln Pro His Arg Pro Asp Pro Gly Arg Pro Val
   5                10                15                20

ggc ctg gag cag ctg cgg cgg ctc ggg gtg ctc tac tgg aag ctg gat 152

Gly Leu Glu Gln Leu Arg Arg Leu Gly Val Leu Tyr Trp Lys Leu Asp
          25                30                35

gct gac aaa tat gag aat gat cca gaa tta gaa aag atc cga aga gag 200

Ala Asp Lys Tyr Glu Asn Asp Pro Glu Leu Glu Lys Ile Arg Arg Glu
          40                45                50

agg aac tac tcc tgg atg gac atc ata acc ata tgc aaa gat aaa cta 248

Arg Asn Tyr Ser Trp Met Asp Ile Ile Thr Ile Cys Lys Asp Lys Leu
          55                60                65

cca aat tat gaa gaa aag att aag atg ttc tac gag gag cat ttg cac 296

Pro Asn Tyr Glu Glu Lys Ile Lys Met Phe Tyr Glu Glu His Leu His
          70                75                80

ttg gac gat gag atc cgc tac atc ctg gat ggc agt ggg tac ttc gat 344

Leu Asp Asp Glu Ile Arg Tyr Ile Leu Asp Gly Ser Gly Tyr Phe Asp

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PH-1064PCT-US seq.TXT

| | | | | |
|--|-----|-----|-----|--|
| 85 | 90 | 95 | 100 | |
| gtg agg gac aag gag gac cag tgg atc cgg atc ttc atg gag aag gga | 392 | | | |
| Val Arg Asp Lys Glu Asp Gln Trp Ile Arg Ile Phe Met Glu Lys Gly | | | | |
| | 105 | 110 | 115 | |
| gac atg gtg acg ctc ccc gcg ggg atc tat cac cgc ttc acg gtg gac | 440 | | | |
| Asp Met Val Thr Leu Pro Ala Gly Ile Tyr His Arg Phe Thr Val Asp | | | | |
| | 120 | 125 | 130 | |
| gag aag aac tac acg aag gcc atg cgg ctg ttt gtg gga gaa ccg gtg | 488 | | | |
| Glu Lys Asn Tyr Thr Lys Ala Met Arg Leu Phe Val Gly Glu Pro Val | | | | |
| | 135 | 140 | 145 | |
| tgg aca gcg tac aac cgg ccc gct gac cat ttt gaa gcc cgc ggg cag | 536 | | | |
| Trp Thr Ala Tyr Asn Arg Pro Ala Asp His Phe Glu Ala Arg Gly Gln | | | | |
| | 150 | 155 | 160 | |
| tac gtg aaa ttt ctg gca cag acc gcc tagcagtgcgc gcctgggaac | 583 | | | |
| Tyr Val Lys Phe Leu Ala Gln Thr Ala | | | | |
| 165 | 170 | | | |
| taacacgtgc ctcgtaaagg tccccaatgt aatgactgag cagaaaatca atcactttct | 643 | | | |
| ctttgctttt agaggatagc cttgaggcta gattatcttt cctttgtaag attatttgat | 703 | | | |
| cagaatattt tgtaatgaaa ggatctagaa agcaacttgg aagtgtaaag agtcaccttc | 763 | | | |
| attttctgta actcaatcaa gactgggtggg tccatggccc tgtgttagtt catgcattca | 823 | | | |

PH-1064PCT-US seq.TXT

gttgagtccc aaatgaaagt ttcattctccc gaaatgcagt tccttagatg cccatctgga 883
cgtgatgccg cgcctgccgt gtaagaaggt gcaatcctag ataacacagc tagccagata 943
gaagacactt ttttctccaa aatgatgcct tgggggtgggg agtggtaggg ggaagagctc 1003
ccaccctaag gggcacacac tgagttgctt atgccacttc ctgtttcaaa ataaagtaac 1063
tgccttaatc ttatactcat ggcttggagt taccttatat tcaggtatat gtgatatttt 1123
gcctggtttg ttaaaattgc ccattttaga ttccttctat aattgttctt atagataagt 1183
aatttatata tgagctgtgt tagtatTTTT tcagtgtgag atctctggat tctttcacia 1243
taaagctgtt gaattttaac aggagtatta gtacataaat tttctactca acaattccga 1303
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gaagggcagg tcgtttttaa agtatttctt tttttaactg gatgaaaaat cttcatgtta 1423
ggattaatTT tcttaatcac ctccacactg tacagaggaa actcaagcct taaatgttta 1483
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ttttaagaac gaaacattca tatgataaac tatcgcttta aattgccttt ctgcttcat 1723
ataacttttc cctgtcagga tccttagtgt ttgaaactcc tcgtgcgggg ctggcctcct 1783

PH-1064PCT-US seq.TXT

gcggactcta gtttcgcctc cttgatgtgg cgcctgggat ttcttcactt cagagctgta 1843
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 caggaggcta aggtgggagg attcttagag cctgggaggt cgaggctgca gtgagctgtg 1963
 attgtggcca ctgcactcca gcctgggtga cagagcgaga ctctgtctca aaaaagaaga 2023
 aagagtaaga gctgaggcat ataatagaat tctgctaaag cacttaaggt gaaatcacat 2083
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<211> 173

<212> PRT

<213> Homo sapiens

<400> 158

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| Met | Asp | Asp | Ala | Pro | Gly | Asp | Pro | Arg | Gln | Pro | His | Arg | Pro | Asp | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Gly | Arg | Pro | Val | Gly | Leu | Glu | Gln | Leu | Arg | Arg | Leu | Gly | Val | Leu | Tyr |
| | | | | 20 | | | | | 25 | | | | | 30 | |
| Trp | Lys | Leu | Asp | Ala | Asp | Lys | Tyr | Glu | Asn | Asp | Pro | Glu | Leu | Glu | Lys |
| | | | | 35 | | | | | 40 | | | | | 45 | |
| Ile | Arg | Arg | Glu | Arg | Asn | Tyr | Ser | Trp | Met | Asp | Ile | Ile | Thr | Ile | Cys |

PH-1064PCT-US seq.TXT

| | | |
|---|-----|-----|
| 50 | 55 | 60 |
| Lys Asp Lys Leu Pro Asn Tyr Glu Glu Lys Ile Lys Met Phe Tyr Glu | | |
| 65 | 70 | 75 |
| Glu His Leu His Leu Asp Asp Glu Ile Arg Tyr Ile Leu Asp Gly Ser | | |
| | 85 | 90 |
| Gly Tyr Phe Asp Val Arg Asp Lys Glu Asp Gln Trp Ile Arg Ile Phe | | |
| | 100 | 105 |
| Met Glu Lys Gly Asp Met Val Thr Leu Pro Ala Gly Ile Tyr His Arg | | |
| | 115 | 120 |
| Phe Thr Val Asp Glu Lys Asn Tyr Thr Lys Ala Met Arg Leu Phe Val | | |
| | 130 | 135 |
| Gly Glu Pro Val Trp Thr Ala Tyr Asn Arg Pro Ala Asp His Phe Glu | | |
| 145 | 150 | 155 |
| Ala Arg Gly Gln Tyr Val Lys Phe Leu Ala Gln Thr Ala | | |
| | 165 | 170 |

<210> 159

<211> 20

<212> DNA

<220>

<223> Description of the artificial sequence:an artificially synthesized primer sequence

<400> 159

ggaagtgtta cttctgctct

20

<210> 160

<211> 50

<212> DNA

<220>

<223> Description of the artificial sequence:an artificially synthesized primer sequence

<400> 160

gagagagaga gagagagaga actagtctcg agtttttttt tttttttttt 50

<210> 161

<211> 41

<212> DNA

<220>

<223> Description of the artificial sequence:an artificially synthesized primer sequence

<400> 161

gagagagaga gagagagcgg ccgcactagt cccccccccc c 41

<210> 162

<211> 30

<212> RNA

<213> Artificial Sequence

<220>

<223> Description of the artificial sequence: an artificially synthesized oligo-cap linker sequence

<400> 162

agcaucgagu cggccuuguu ggccuacugg 30

<210> 163

<211> 42

<212> DNA

<213> Artificial Sequence

PH-1064PCT-US seq.TXT

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 <223> Description of the artificial sequence: an artificially synthesized oligo(dT)primer sequence
 <400> 163
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<210> 164
 <211> 21
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of the artificial sequence: an artificially synthesized primer sequence
 <400> 164
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<210> 165
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 <213> Artificial Sequence
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 <223> Description of the artificial sequence: an artificially synthesized primer sequence
 <400> 165
 gcggctgaag acggcctatg t 21

<210> 166
 <211> 30
 <212> DNA
 <213> Artificial Sequence
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 <223> Description of the artificial sequence: an artificially synthesized primer sequence
 <400> 166
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<210> 167
 <211> 30
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of the artificial sequence: an artificially synthesized primer sequence
 <400> 167
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<210> 168
 <211> 1536

PH-1064PCT-US seq.TXT

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222>(139)..(1062)

<400> 168

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120

CCTCCATTTC AGCTAATC ATG GGA GAG ATT AAA GTC TCT CCT GAT TAT AAC
171

Met Gly Glu Ile Lys Val Ser Pro Asp Tyr Asn

1

5

10

TGG TTT AGA GGT ACA GTT CCC CTT AAA AAG ATT ATT GTG GAT GAT GAT
219

Trp Phe Arg Gly Thr Val Pro Leu Lys Lys Ile Ile Val Asp Asp Asp

15

20

25

GAC AGT AAG ATA TGG TCG CTC TAT GAC GCG GGC CCC CGA AGT ATC AGG
267

Asp Ser Lys Ile Trp Ser Leu Tyr Asp Ala Gly Pro Arg Ser Ile Arg

30

35

40

TGT CCT CTC ATA TTC CTG CCC CCT GTC AGT GGA ACT GCA GAT GTC TTT
315

Cys Pro Leu Ile Phe Leu Pro Pro Val Ser Gly Thr Ala Asp Val Phe

45

50

55

TTC CGG CAG ATT TTG GCT CTG ACT GGA TGG GGT TAC CGG GTT ATC GCT
363

Phe Arg Gln Ile Leu Ala Leu Thr Gly Trp Gly Tyr Arg Val Ile Ala

60

65

70

75

TTG CAG TAT CCA GTT TAT TGG GAC CAT CTC GAG TTC TGT GAT GGA TTC
411

Leu Gln Tyr Pro Val Tyr Trp Asp His Leu Glu Phe Cys Asp Gly Phe

PH-1064PCT-US seq.TXT

| | | | | | |
|---|-----|--|-----|--|-----|
| | 80 | | 85 | | 90 |
| AGA AAA CTT TTA GAC CAT TTA CAA TTG GAT AAA GTT CAT CTT TTT GGC | | | | | |
| 459 | | | | | |
| Arg Lys Leu Leu Asp His Leu Gln Leu Asp Lys Val His Leu Phe Gly | | | | | |
| | 95 | | 100 | | 105 |
| GCT TCT TTG GGA GGC TTT TTG GCC CAG AAA TTT GCT GAA TAT ACT CAC | | | | | |
| 507 | | | | | |
| Ala Ser Leu Gly Gly Phe Leu Ala Gln Lys Phe Ala Glu Tyr Thr His | | | | | |
| | 110 | | 115 | | 120 |
| AAA TCT CCT AGA GTC CAT TCC CTA ATC CTC TGC AAT TCC TTC AGT GAC | | | | | |
| 555 | | | | | |
| Lys Ser Pro Arg Val His Ser Leu Ile Leu Cys Asn Ser Phe Ser Asp | | | | | |
| | 125 | | 130 | | 135 |
| ACC TCT ATC TTC AAC CAA ACT TGG ACT GCA AAC AGC TTT TGG CTG ATG | | | | | |
| 603 | | | | | |
| Thr Ser Ile Phe Asn Gln Thr Trp Thr Ala Asn Ser Phe Trp Leu Met | | | | | |
| | 140 | | 145 | | 150 |
| | | | | | 155 |
| CCT GCA TTT ATG CTC AAA AAA ATA GTT CTT GGA AAT TTT TCA TCT GGC | | | | | |
| 651 | | | | | |
| Pro Ala Phe Met Leu Lys Lys Ile Val Leu Gly Asn Phe Ser Ser Gly | | | | | |
| | 160 | | 165 | | 170 |
| CCG GTG GAC CCT ATG ATG GCT GAT GCC ATT GAT TTC ATG GTA GAC AGG | | | | | |
| 699 | | | | | |
| Pro Val Asp Pro Met Met Ala Asp Ala Ile Asp Phe Met Val Asp Arg | | | | | |
| | 175 | | 180 | | 185 |
| CTA GAA AGT TTG GGT CAG AGT GAA CTG GCT TCA AGA CTT ACC TTG AAT | | | | | |
| 747 | | | | | |

PH-1064PCT-US seq.TXT

Leu Glu Ser Leu Gly Gln Ser Glu Leu Ala Ser Arg Leu Thr Leu Asn

190

195

200

TGT CAA AAT TCT TAT GTG GTA CCT CAT AAA ATT CGG GAC ATA CCT GTA
795

Cys Gln Asn Ser Tyr Val Val Pro His Lys Ile Arg Asp Ile Pro Val

205

210

215

ACT ATT ATG GAT GTG TTT GAT CAG AGT GCG CTT TCA ACT GAA GCT AAA
843

Thr Ile Met Asp Val Phe Asp Gln Ser Ala Leu Ser Thr Glu Ala Lys

220

225

230

235

GAA GAA ATG TAC AAG CTG TAT CCT AAT GCC CGA AGA GCT CAT CTG AAA
891

Glu Glu Met Tyr Lys Leu Tyr Pro Asn Ala Arg Arg Ala His Leu Lys

240

245

250

ACA GGA GGC AAT TTC CCA TAC CTG TGC AGA AGT GCA GAG GTC AAT CTT
939

Thr Gly Gly Asn Phe Pro Tyr Leu Cys Arg Ser Ala Glu Val Asn Leu

255

260

265

TAT GTA CAG ATA CAT TTG CTG CAA TTC CAT GGA ACC AAA TAC GCG GCC
987

Tyr Val Gln Ile His Leu Leu Gln Phe His Gly Thr Lys Tyr Ala Ala

270

275

280

ATT GAC CCA TCA ATG GTC AGT GCC GAG GAG CTT GAG GTG CAG AAA GGC
1035

Ile Asp Pro Ser Met Val Ser Ala Glu Glu Leu Glu Val Gln Lys Gly

285

290

295

AGC CTT GGC ATC AGC CAG GAG GAG CAG TAGTGTGTCT CTCGCTGTCA ATGATGA

PH-1064PCT-US seq.TXT

1089

Ser Leu Gly Ile Ser Gln Glu Glu Gln

300

305

GTTGACCCGG TGTGTTCTTG TATAGTCAGT GGCATCAGCA CCCGTCAGCC GGCCTTTTCC
1149

TTCAGGTTTCG TCAGGCTCAC CGGTTCTCAC TGTGTCTGGG AAGTAGGACT GATGGTCATC
1209

TTCATGACAG GCGGCATCTC CACTAAGCCT GTGTAAGTGT TCCCTCTTTG GTTTTCTTAG
1269

CTTTTGAATT TGAAGAAGTA CTTTGAAGA CTCCCATTTT AAGAACCGTG CAGATTTTGC
1329

TACCAAAAGT CTTCAACCACT GTGTTCTTAA GTGAATGTTA ATTTCTGAGG TTTGGGACTT
1389

TGTGGTGGTT TTTTCTTCT TTTCTTTTCC ATTCTTCTTT CTTTCTTTTT ATGTTGTTTG
1449

CTGTAAATGC TGCACATCCA GATTGCATAT CAGGACATTG GTTATTTTAT GCTTTCTTGG
1509 ATATAACCAT GATCAGAGTG CCATGGC
1536

<210> 169

<211> 308

<212> PRT

<213> Homo sapiens

<400> 169

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| Met | Gly | Glu | Ile | Lys | Val | Ser | Pro | Asp | Tyr | Asn | Trp | Phe | Arg | Gly | Thr |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Val | Pro | Leu | Lys | Lys | Ile | Ile | Val | Asp | Asp | Asp | Asp | Ser | Lys | Ile | Trp |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Ser | Leu | Tyr | Asp | Ala | Gly | Pro | Arg | Ser | Ile | Arg | Cys | Pro | Leu | Ile | Phe |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Leu | Pro | Pro | Val | Ser | Gly | Thr | Ala | Asp | Val | Phe | Phe | Arg | Gln | Ile | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ala | Leu | Thr | Gly | Trp | Gly | Tyr | Arg | Val | Ile | Ala | Leu | Gln | Tyr | Pro | Val |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 |
| Tyr | Trp | Asp | His | Leu | Glu | Phe | Cys | Asp | Gly | Phe | Arg | Lys | Leu | Leu | Asp |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| His | Leu | Gln | Leu | Asp | Lys | Val | His | Leu | Phe | Gly | Ala | Ser | Leu | Gly | Gly |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Phe | Leu | Ala | Gln | Lys | Phe | Ala | Glu | Tyr | Thr | His | Lys | Ser | Pro | Arg | Val |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| His | Ser | Leu | Ile | Leu | Cys | Asn | Ser | Phe | Ser | Asp | Thr | Ser | Ile | Phe | Asn |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Gln | Thr | Trp | Thr | Ala | Asn | Ser | Phe | Trp | Leu | Met | Pro | Ala | Phe | Met | Leu |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 |
| Lys | Lys | Ile | Val | Leu | Gly | Asn | Phe | Ser | Ser | Gly | Pro | Val | Asp | Pro | Met |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | | | | 165 | | | | | 170 | | | | | 175 | | | |
| Met | Ala | Asp | Ala | Ile | Asp | Phe | Met | Val | Asp | Arg | Leu | Glu | Ser | Leu | Gly | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Gln | Ser | Glu | Leu | Ala | Ser | Arg | Leu | Thr | Leu | Asn | Cys | Gln | Asn | Ser | Tyr | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Val | Val | Pro | His | Lys | Ile | Arg | Asp | Ile | Pro | Val | Thr | Ile | Met | Asp | Val | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Phe | Asp | Gln | Ser | Ala | Leu | Ser | Thr | Glu | Ala | Lys | Glu | Glu | Met | Tyr | Lys | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Leu | Tyr | Pro | Asn | Ala | Arg | Arg | Ala | His | Leu | Lys | Thr | Gly | Gly | Asn | Phe | | |
| | | | 245 | | | | | | 250 | | | | | 255 | | | |
| Pro | Tyr | Leu | Cys | Arg | Ser | Ala | Glu | Val | Asn | Leu | Tyr | Val | Gln | Ile | His | | |
| | | 260 | | | | | | 265 | | | | | 270 | | | | |
| Leu | Leu | Gln | Phe | His | Gly | Thr | Lys | Tyr | Ala | Ala | Ile | Asp | Pro | Ser | Met | | |
| | 275 | | | | | | 280 | | | | | 285 | | | | | |
| Val | Ser | Ala | Glu | Glu | Leu | Glu | Val | Gln | Lys | Gly | Ser | Leu | Gly | Ile | Ser | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | |
| Gln | Glu | Glu | Gln | | | | | | | | | | | | | | |
| 305 | | | | | | | | | | | | | | | | | |

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<211> 2560

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (202)..(1002)

<400> 170

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TGCAGTTGAA GCAGAACCAA GTGGCCATCC CGGCGTTAGA CCGTAGGTTT CTGGTCCCGG
120
AGTGGTCGGA GCCCGCCAGT GGGCAGGCAG CTCTTGCTCA CAGGCCGCGG TGCCCAGGCC
180
GCTGGCTCTC CGCAGGGCGG A ATG GCG CTG CAA GTG GAG CTG GTA CCC ACC
231

Met Ala Leu Gln Val Glu Leu Val Pro Thr

1

5

10

GGG GAG ATC ATC CGC GTG GTT CAT CCC CAC AGG CCC TGC AAG CTT GCC
279
Gly Glu Ile Ile Arg Val Val His Pro His Arg Pro Cys Lys Leu Ala

15

20

25

PH-1064PCT-US seq.TXT

CTG GGC AGT GAC GGG GTT CGG GTG ACC ATG GAG AGT GCG CTC ACC GCC
327

Leu Gly Ser Asp Gly Val Arg Val Thr Met Glu Ser Ala Leu Thr Ala

30

35

40

CGT GAC CGG GTG GGG GTG CAG GAT TTC GTG CTG CTG GAG AAC TTC ACC
375

Arg Asp Arg Val Gly Val Gln Asp Phe Val Leu Leu Glu Asn Phe Thr

45

50

55

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423

Ser Glu Ala Ala Phe Ile Gly Asn Leu Arg Arg Arg Phe Arg Glu Asn

60

65

70

CTC ATC TAC ACC TAC ATT GGC CCC GTC CTG GTC TCT GTC AAT CCC TAC
471

Leu Ile Tyr Thr Tyr Ile Gly Pro Val Leu Val Ser Val Asn Pro Tyr

75

80

85

90

CGG GAC CTG CAG ATC TAC AGC CGG CAG CAT ATG GAG CGT TAC CGT GGC
519

Arg Asp Leu Gln Ile Tyr Ser Arg Gln His Met Glu Arg Tyr Arg Gly

95

100

105

GTC AGC TTC TAT GAA GTG CCC CCT CAC CTG TTT GCC GTG GCG GAC ACT
567

Val Ser Phe Tyr Glu Val Pro Pro His Leu Phe Ala Val Ala Asp Thr

110

115

120

GTG TAC CGA GCA CTG CGC ACG GAG CGT CGG GAC CAG GCT GTG ATG ATC
615

Val Tyr Arg Ala Leu Arg Thr Glu Arg Arg Asp Gln Ala Val Met Ile

125

130

135

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TCT GGG GAG AGC GGG GCA GGC AAG ACC GAG GCC ACC AAG AGG CTG CTG
663

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140

145

150

CAG TTC TAT GCA GAG ACC TGC CCA GCC CCC GAG CGC GGA GGT GCC GTG
711

Gln Phe Tyr Ala Glu Thr Cys Pro Ala Pro Glu Arg Gly Gly Ala Val

155

160

165

170

CGG GAC CGG CTG CTA CAG AGC AAC CCG GTG CTG GAG GCC TTT GGA AAT
759

Arg Asp Arg Leu Leu Gln Ser Asn Pro Val Leu Glu Ala Phe Gly Asn

175

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185

GCC AAG ACC CTC CGG AAC GAT AAC TCC AGC AGG TTC GGG AAG TAC ATG
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Ala Lys Thr Leu Arg Asn Asp Asn Ser Ser Arg Phe Gly Lys Tyr Met

190

195

200

GAT GTG CAG TTT GAC TTC AAG GGT GCC CCC GTG GGT GGC CAC ATC CTC
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Asp Val Gln Phe Asp Phe Lys Gly Ala Pro Val Gly Gly His Ile Leu

205

210

215

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903

Ser Tyr Pro Leu Glu Lys Ser Arg Val Val His Gln Asn His Gly Glu

220

225

230

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235

240

245

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260

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1058

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1118

TCGTGGCCAG CGTCCTTCAT TTGGGCAACA TCCACTTTGC TGCCAACGAG GAGAGCAATG
1178

CCCAGGTCAC CACCGAGAAC CAGCTCAAGT ATCTGAGCCC ATTCAGTATG CGGTGCCTGT
1238

TGTGAAATAC GACCGCAAGG GCTACAAGCC TCGCTCCCGG CAGCTGCTGC TCACGCCCAA
1298

CGCCGTCGTC ATCGTGGAGG ACGCCAAAGT CAAGCAGAGG ATTGATTACG CCAACCTGAC
1358

CGGAATCTCT GTCAGCAGCC TGAGCGACAG TCTTTTTGTG CTTTCATGTAC AGCGTGCGGA
1418

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1478

GACAGCCCTC AGTGCCAACC GCGTGAACAG CATCAACATC AACCAGGGCA GCATCACGTT
1538

TGCAGGGGGC CCCGGCAGGG ATGGCACCAT TGA CTTCACA CCCGGCTCGG AGCTGCTCAT
1598

CACCAAGGCC AAGAACGGGC ACCTGGCTGT GGTGCCCCA CGGCTGAATT CTCGGTGATA
1658

AAGGCGCCCA CTGGACCCTC CCAACGCCCA ATGCTTTGCT TTTCTCCTCC TCCCCTTCCC
1718

AGTTACCAA GACTCGAACT TCCAGACAGG GACCCAGGGA CACCCCGAAG CCCACCTGCA
1778

ATCTCCCACC TCCTGCCCAT CCCTCTCTTG AGGGAGCAGC AGGGGCCAGG AGCTACCCCA
1838

GGAGTGGGCC AGGCCGGGCC ACAGCAATAG GAAAGCCAGG GCCAGAGCGA GCCATGCCAG
1898

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1958

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2018

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2258
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<213> Homo sapiens

<400> 171

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| Met | Ala | Leu | Gln | Val | Glu | Leu | Val | Pro | Thr | Gly | Glu | Ile | Ile | Arg | Val | 1 | 5 | 10 | 15 |
| Val | His | Pro | His | Arg | Pro | Cys | Lys | Leu | Ala | Leu | Gly | Ser | Asp | Gly | Val | 20 | 25 | 30 | |
| Arg | Val | Thr | Met | Glu | Ser | Ala | Leu | Thr | Ala | Arg | Asp | Arg | Val | Gly | Val | 35 | 40 | 45 | |
| Gln | Asp | Phe | Val | Leu | Leu | Glu | Asn | Phe | Thr | Ser | Glu | Ala | Ala | Phe | Ile | 50 | 55 | 60 | |
| Gly | Asn | Leu | Arg | Arg | Arg | Phe | Arg | Glu | Asn | Leu | Ile | Tyr | Thr | Tyr | Ile | 65 | 70 | 75 | 80 |
| Gly | Pro | Val | Leu | Val | Ser | Val | Asn | Pro | Tyr | Arg | Asp | Leu | Gln | Ile | Tyr | 85 | 90 | 95 | |
| Ser | Arg | Gln | His | Met | Glu | Arg | Tyr | Arg | Gly | Val | Ser | Phe | Tyr | Glu | Val | 100 | 105 | 110 | |
| Pro | Pro | His | Leu | Phe | Ala | Val | Ala | Asp | Thr | Val | Tyr | Arg | Ala | Leu | Arg | 115 | 120 | 125 | |
| Thr | Glu | Arg | Arg | Asp | Gln | Ala | Val | Met | Ile | Ser | Gly | Glu | Ser | Gly | Ala | 130 | 135 | 140 | |
| Gly | Lys | Thr | Glu | Ala | Thr | Lys | Arg | Leu | Leu | Gln | Phe | Tyr | Ala | Glu | Thr | 145 | 150 | 155 | 160 |
| Cys | Pro | Ala | Pro | Glu | Arg | Gly | Gly | Ala | Val | Arg | Asp | Arg | Leu | Leu | Gln | 165 | 170 | 175 | |
| Ser | Asn | Pro | Val | Leu | Glu | Ala | Phe | Gly | Asn | Ala | Lys | Thr | Leu | Arg | Asn | | | | |

PH-1064PCT-US seq.TXT

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| Asp | Asn | Ser | Ser | Arg | Phe | Gly | Lys | Tyr | Met | Asp | Val | Gln | Phe | Asp | Phe | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| Lys | Gly | Ala | Pro | Val | Gly | Gly | His | Ile | Leu | Ser | Tyr | Pro | Leu | Glu | Lys | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| Ser | Arg | Val | Val | His | Gln | Asn | His | Gly | Glu | Arg | Asn | Phe | Thr | Ser | Ser | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| Thr | Ser | Cys | Trp | Arg | Gly | Ala | Arg | Arg | Arg | Leu | Phe | Ala | Gly | Trp | Ala | | |
| | | | | 245 | | | | 250 | | | | | | 255 | | | |
| Trp | Asn | Gly | Thr | Pro | Arg | Ala | Ile | Cys | Thr | Trp | | | | | | | |
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118

Met

1

AGG CCG CGC GGA AGG AAG GCG GCG AGC CCC GGG GCC CCG AGG CCT TGG
166

Arg Pro Arg Gly Arg Lys Ala Ala Ser Pro Gly Ala Pro Arg Pro Trp

5

10

15

CCG CGT CAC AGC ACC CAC ATG GCC TCT GGA GTG GGC GCG GCC TTC GAG
214

Pro Arg His Ser Thr His Met Ala Ser Gly Val Gly Ala Ala Phe Glu

20

25

30

GAA CTG CCT CAC GAC GGC ACG TGT GAC GAG TGC GAG CCC GAC GAG GCT
262

Glu Leu Pro His Asp Gly Thr Cys Asp Glu Cys Glu Pro Asp Glu Ala

35

40

45

PH-1064PCT-US seq.TXT

CCG GGG GCC GAG GAA GTG TGC CGA GAA TGC GGC TTC TGC TAC TGC CGC
310

Pro Gly Ala Glu Glu Val Cys Arg Glu Cys Gly Phe Cys Tyr Cys Arg

50

55

60

65

CGC CAT GCC GAG GCG CAC AGG CAG AAG TTC CTC AGT CAC CAT CTG GCC
358

Arg His Ala Glu Ala His Arg Gln Lys Phe Leu Ser His His Leu Ala

70

75

80

GAA TAC GTC CAC GGC TCC CAG GCC TGG ACC CCG CCA GCT GAC GGA GAG
406

Glu Tyr Val His Gly Ser Gln Ala Trp Thr Pro Pro Ala Asp Gly Glu

85

90

95

GGG GCG GGG AAG GAA GAA GCG GAG GTC AAG GTG GAG CAG GAG AGG GAG
454

Gly Ala Gly Lys Glu Glu Ala Glu Val Lys Val Glu Gln Glu Arg Glu

100

105

110

ATA GAA AGC GAG GCA GGG GAA GAG AGT GAG TCG GAG GAA GAG AGC GAG
502

Ile Glu Ser Glu Ala Gly Glu Glu Ser Glu Ser Glu Glu Glu Ser Glu

115

120

125

TCA GAG GAA GAG AGC GAG ACA GAG GAA GAG AGT GAG GAT GAG AGC GAT
550

Ser Glu Glu Glu Ser Glu Thr Glu Glu Glu Ser Glu Asp Glu Ser Asp

130

135

140

145

GAG GAG AGT GAA GAA GAC AGC GAG GAA GAA ATG GAG GAT GAG CAA GAA
598

Glu Glu Ser Glu Glu Asp Ser Glu Glu Glu Met Glu Asp Glu Gln Glu

PH-1064PCT-US seq.TXT

150

155

160

AGC GAG GCC GAA GAA GAC AAC CAA GAA GAA GGG GAA TCC GAG GCG GAG
646

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165

170

175

GGA GAA ACT GAG GCA GAA AGT GAA TTT GAC CCA GAA ATA GAA ATG GAA
694

Gly Glu Thr Glu Ala Glu Ser Glu Phe Asp Pro Glu Ile Glu Met Glu

180

185

190

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742

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195

200

205

AGT ACC TAT TGC CAG GAA GAT AGG CAG CTC ATC TGT GTC CTG TGT CCA
790

Ser Thr Tyr Cys Gln Glu Asp Arg Gln Leu Ile Cys Val Leu Cys Pro

210

215

220

225

GTC ATT GGG GCT CAC CAG GGC CAC CAA CTC TCC ACC CTA GAC GAA GCC
838

Val Ile Gly Ala His Gln Gly His Gln Leu Ser Thr Leu Asp Glu Ala

230

235

240

TTT GAA GAA TTA AGA AGC AAA GAC TCA GGT GGA CTG AAG GCC GCT ATG
886

Phe Glu Glu Leu Arg Ser Lys Asp Ser Gly Gly Leu Lys Ala Ala Met

245

250

255

ATC GAA TTG GTG GAA AGG TTG AAG TTC AAG AGC TCA GAC CCT AAA GTA
934

Ile Glu Leu Val Glu Arg Leu Lys Phe Lys Ser Ser Asp Pro Lys Val

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| | | |
|---|-----|-----|
| 260 | 265 | 270 |
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| 982 | | |
| Thr Arg Asp Gln Met Lys Met Phe Ile Gln Gln Glu Phe Lys Lys Val | | |
| 275 | 280 | 285 |
| CAG AAA GTG ATT GCT GAT GAG GAG CAG AAG GCC CTT CAT CTA GTG GAC | | |
| 1030 | | |
| Gln Lys Val Ile Ala Asp Glu Glu Gln Lys Ala Leu His Leu Val Asp | | |
| 290 | 295 | 300 |
| ATC CAA GAG GCA ATG GCC ACA GCT CAT GTG ACT GAG ATA CTG GCA GAC | | |
| 1078 | | |
| Ile Gln Glu Ala Met Ala Thr Ala His Val Thr Glu Ile Leu Ala Asp | | |
| 310 | 315 | 320 |
| ATC CAA TCC CAC ATG GAT AGG TTG ATG ACT CAG ATG GCC CAA GCC AAG | | |
| 1126 | | |
| Ile Gln Ser His Met Asp Arg Leu Met Thr Gln Met Ala Gln Ala Lys | | |
| 325 | 330 | 335 |
| GAA CAA CTT GAT ACC TCT AAT GAA TCA GCT GAG CCA AAG GCA GAG GGC | | |
| 1174 | | |
| Glu Gln Leu Asp Thr Ser Asn Glu Ser Ala Glu Pro Lys Ala Glu Gly | | |
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| GAT GAG GAA GGA CCC AGT GGT GCC AGT GAA GAA GAG GAC ACA TGAAGGCTT | | |
| 1225 | | |
| Asp Glu Glu Gly Pro Ser Gly Ala Ser Glu Glu Glu Asp Thr | | |
| 355 | 360 | 365 |
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| 1285 | | |

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1405
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1465
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1525
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1585
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1825
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1885
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1945
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2005
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2125
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2185
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2245
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2305
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2425
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<213> Homo sapiens

<400> 173

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 35           40           45
Ala Pro Gly Ala Glu Glu Val Cys Arg Glu Cys Gly Phe Cys Tyr Cys
 50           55           60
Arg Arg His Ala Glu Ala His Arg Gln Lys Phe Leu Ser His His Leu
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Ala Glu Tyr Val His Gly Ser Gln Ala Trp Thr Pro Pro Ala Asp Gly
           85           90           95
Glu Gly Ala Gly Lys Glu Glu Ala Glu Val Lys Val Glu Gln Glu Arg
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Glu Ile Glu Ser Glu Ala Gly Glu Glu Ser Glu Ser Glu Glu Glu Ser
          115          120          125
Glu Ser Glu Glu Glu Ser Glu Thr Glu Glu Glu Ser Glu Asp Glu Ser
          130          135          140
Asp Glu Glu Ser Glu Glu Asp Ser Glu Glu Glu Met Glu Asp Glu Gln
145           150           155           160
Glu Ser Glu Ala Glu Glu Asp Asn Gln Glu Glu Gly Glu Ser Glu Ala
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Glu Gly Glu Thr Glu Ala Glu Ser Glu Phe Asp Pro Glu Ile Glu Met
           180          185          190
Glu Ala Glu Arg Val Ala Lys Arg Lys Cys Pro Asp His Gly Leu Asp
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Leu Ser Thr Tyr Cys Gln Glu Asp Arg Gln Leu Ile Cys Val Leu Cys
          210          215          220
Pro Val Ile Gly Ala His Gln Gly His Gln Leu Ser Thr Leu Asp Glu
225           230           235           240
Ala Phe Glu Glu Leu Arg Ser Lys Asp Ser Gly Gly Leu Lys Ala Ala
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Met Ile Glu Leu Val Glu Arg Leu Lys Phe Lys Ser Ser Asp Pro Lys
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Val Thr Arg Asp Gln Met Lys Met Phe Ile Gln Gln Glu Phe Lys Lys
          275          280          285
Val Gln Lys Val Ile Ala Asp Glu Glu Gln Lys Ala Leu His Leu Val
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Asp Ile Gln Glu Ala Met Ala Thr Ala His Val Thr Glu Ile Leu Ala
305           310           315           320
Asp Ile Gln Ser His Met Asp Arg Leu Met Thr Gln Met Ala Gln Ala
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